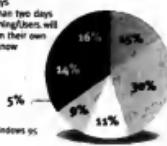


COMPUTERWORLD



Hours on Windows 95?

- Up to two hours
- 2 to 3 hours
- Up to a full day
- Two days
- More than two days
- No training users will learn on their own
- Don't know



Total: 100 Windows 95 beta users

What price, Win 95?

User migration cost estimates run the gamut from \$500 to \$1,000+ per PC

By Stuart J. Johnston

Most corporate users gearing up for Windows 95 plan to spend less than \$1,000 per machine to get their PCs in shape, according to an exclusive Computerworld survey.

When it comes to trying to put a nice round figure on upgrade costs, however, user and analyst estimates are all over the map. That gives

Desktop watch

- IBM explains away the OS/2 uproar. See page 4.
- Stability and compatibility are top IS concerns with Win 95. See page 5.

for estimates of training time, too.

Computerworld surveyed 100 information systems decision-makers who have participated in the Microsoft Corp. Windows 95 beta or Preview programs. The survey found that 49% expect to spend less than \$500 per PC to upgrade hardware and software. An additional 20% expect to pay between \$500 and \$1,000, and 16% expect to pay more than \$1,000. The other 15% don't know how much they will spend.

AT&T opens up WAN bandwidth to larger apps

By Bob Wallace

AT&T Corp. has confirmed that it will soon announce Integrated Services Digital Network Primary Rate Interface capabilities in its nationwide network. Computerworld has learned. This will enable PRI users to free up sorely needed wide-area network capacity for high-bandwidth applications.

According to a source close to the company, these capabilities will be provided via user-to-user signaling. That technology will let users shift remote LAN access/authentication from a data transport channel that is in heavy demand to a lightly used signaling channel.

Much attention has been given to ISDN Basic Rate Interface, which is sold by local carriers and is used to give small sites and telecommuters

AT&T, page 169

Microsoft/DEC deal to buoy NT, Alpha

By Michael Goldberg/
and Jean S. Bozman

Moving to bolster its reputation at the higher reaches of the enterprise, Microsoft Corp. last week teamed up with Digital Equipment Corp. to build Windows NT into a standard for server operating systems.

Users generally hailed the deal as a way for Microsoft to ratchet itself upward from the desktop by leveraging Digital's resources in corporate-level desktop integration, service and support.

For Digital, the deeper partnership with the software giant should boost the fortunes of its Alpha systems, providing the company with a more solid footing on its comeback trail, industry analysts said.

"They've got a real partnership with the behemoth of the PC industry, and the industry is increasingly PC-

oriented," said Jonathan Euzen, research director at Illuminata, a Herndon, N.H., research firm.

In exchange for paying \$50 million to \$100 million to train 1,500 Digital staffers in Microsoft support, the Redmond, Wash.-based vendor gets to use Digital's platform

Windows NT, page 16

hardware and software. An additional 20% expect to pay between \$500 and \$1,000, and 16% expect to pay more than \$1,000. The other 15% don't know how much they will spend.

Apples and oranges

Part of the reason for the disparity is that companies have all kinds of machines, from 286-based units to Intel Corp. Pentium-based units. The cost of upgrading will depend on what percentage of the machines are newer technology, how many will be upgraded and what upgrade path will be taken. For example, companies may opt to buy new systems rather than upgrade old ones.

Microsoft recommends a minimum platform of a 486-based box equipped with at least Windows 95, page 169

WHAT RE-ENGINEERING THAT WORKS?

FLUSHED with SUCCESS

BY JOSEPH MAGLITTA



Five years ago, American Standard, Inc. was in danger of going down the drain. Today, thanks to massive re-engineering, the world's largest plumbing supplier is overflowing with payoffs.

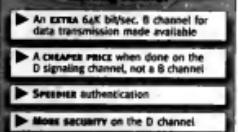
"Most companies blink. These guys didn't," says Michael Hammer, president of Hammer and Co., a Cambridge, Mass., re-engineering training firm. "Few companies are undertaking as broad and deep an effort."

Since emerging from a 1990 leveraged buyout by \$3.1 billion in debt, the Pleasantville, N.J., maker of toilets, air conditioners and bus and truck brakes has tickled more than

75 major re-engineering efforts, according to company re-engineering guru Gary Hamer.

Bleeding widespread redesigns with "dead bone technology"—a company-wide cost reduction and efficiency program—the \$4.5-billion manufacturer has joined the ranks of groups big companies that successfully transform themselves without major layoffs.

Success, page 79



NSB#FTI*****CAR-RT-SORT #0835
BUW7ZE38089596398 0810111505
UNIVERSITY MICROFILMS INT 0801
SERIAL PUBLICATIONS 0811 6 MC -
308 N ZEEB RD MI 48103-1553

Newspaper

Inside Computerworld

August 7, 1995

News**OS/2 image**

IBM is toning down OS/2's snazzy consumer image, but it doesn't want to scare off large corporate customers.

**3Com/Chipcom deal**

3Com has a rough ride on the road to acquiring Chipcom because of users and rival Cabletron.

Microsoft Exchange

Microsoft ships the second beta of its Exchange electronic-mail platform.

ATM access

Sprint becomes the first major long-distance carrier to offer nationwide access to ATM service via a T1 line.

Multimedia notebook

Panasonic unveils a multimedia notebook — a Pentium machine with television-quality features.

**NT clusters**

Microsoft licenses Digital technology to lash multiple Windows NT servers together.

Multiprocessing

Bigger isn't necessarily better. The performance of NT, for one, appears to taper off after six processors.

Auditing the IRS

The Internal Revenue Service is not making wise use of its information technology investment, the General Accounting Office has concluded — again.

Storage

HP announces its highest-capacity 5½-inch magneto-optical jukebox.

**Banking on 'the net'**

Before would-be electronic bankers can jump onto the 'net, they have a host of connectivity challenges to confront.



Would you believe a swamp bacterium that revolutionizes optical storage? The biological and computing sciences are merging like never before. In Depth, Page 83

COMPUTER INDUSTRY**32 CA/Legent**

The Justice Department's settlement with Computer Associates causes grumbling among Legent users and competitors.

OPINION**34 Desktop wars**

Don't worry, OS/2 users. IBM won't pull the plug, Bill Labers predicts.

37 Electronic commerce

Jeffrey C. Frost provides an inside look at how the dreams of electronic commerce can be quashed by the realities of an immature business model.

37 IBM/Lotus

Patricia B. Seybold gives IBM/Lotus a 30-day report card, but three big challenges loom: Microsoft, the Internet and bureaucracy.

38 Windows 95: Just say no

Skip all the hype of Windows 95 and go directly to NT, Charles Babcock advises.

Rich Tennant's "The 5th Wave" cartoon is on vacation and will be moving to another location in Computerworld. We'll keep you posted.

Choice Cuts**54%**

of IS staffs say their companies do nothing to minimize turnover; a recent Computerworld survey says So why DO employees leave? Boredom, money and stress are top complaints.

Careers,
Page 88



Employee retraining. Disaster recovery. Pay-as-you-can plans. Outsourcing contracts are taking on a different look. It's an opportunity for IS to get the upper hand. Management, Page 69

Technical Sections**DESKTOP COMPUTING****42 Windows 95 support**

For those who can't bear the thought of long phone waits for Windows 95 support, here are alternatives.

**42 Windows 95 utilities**

Symantec's Peter Norton Group is releasing a trio of utilities for Windows 95.

WORKGROUP COMPUTING**47 Client/server RAID**

New arrays and related products are making RAID cheaper and more user-friendly.

47 Unix GUI

It took two years, but the Commercial Desktop Environment is finally ready to ship.

ENTERPRISE NETWORKING**53 Wireless computing**

Sabre hawks its wireless technology to airlines; long waits to check in for flights may soon be a thing of the past.

55 Virtual LANs

Digital is selling distributed virtual networking products that analysts and users say may have a leg up on competitors.

LARGE SYSTEMS**59 Client/server imaging**

Two image-based client/server systems are helping transform St. Vincent's Hospital.

59 AS/400 software

Lawson Software's plan to ship new AS/400 and Unix versions of its software ran into a snag due to an IBM delay.

APPLICATION DEVELOPMENT**63 Middleware**

Developers have new options for integrating applications.

63 Lotus sells tool

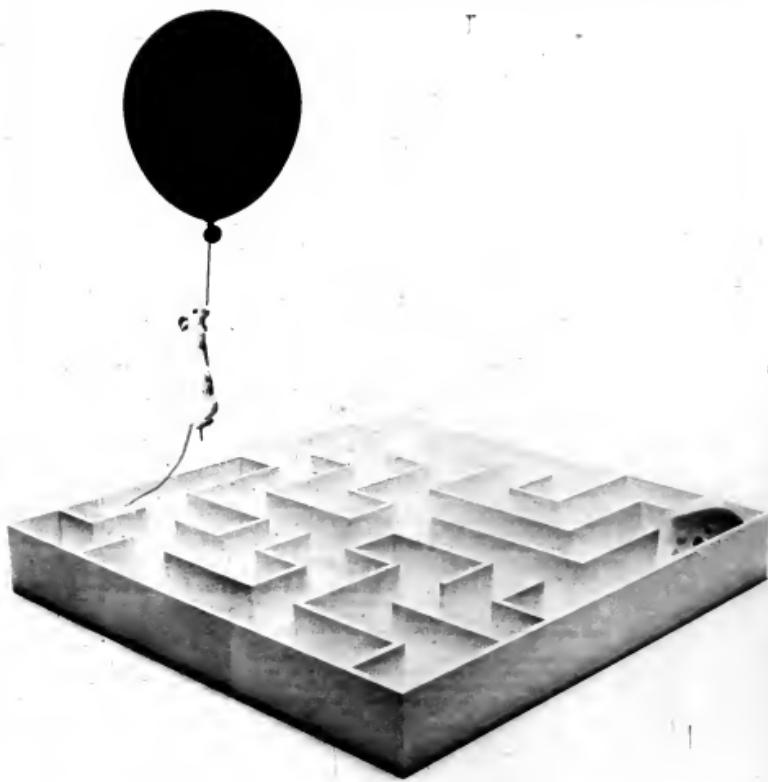
Lotus has sold its visual programming language, sparking speculation that the company is trying to off-load its peripheral products.

Features**MARKETPLACE****106 Outsourcing**

Help desk outsourcing is on the rise, but what goes? Of 376 companies, 86% outsource hardware support and repair; 30% outsource shrink-wrapped PC software support; 15% hand over network-related duties.

Etc.

Calendar	77
Company Index	306
Editorial/Letters	36
Inside Lines	110
Aug. 7 Stock Ticker	307
How to contact CW	310



LOOKING FOR A FASTER WAY TO LOAD YOUR DATABASE?

SyncSort UNIX can help you complete database loads, reorgs and reports in as little as *half the time*.

SyncSort combines high-speed sorting, versatile data manipulation features and the ability to handle a variety of data and file types. The result is a powerful, flexible tool for breaking database bottlenecks. To order SyncSort or for a free copy of our booklet, "Sorting and Relational Database Performance," please call or fax.

syncsort

Tel (201) 930-8200 dept. 124
Fax (201) 930-8285 dept. 124

News

What's ahead for OS/2?

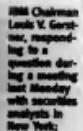
IBM shifts focus back to server rather than battle Microsoft for desktop supremacy

By Lisa Piecik

In response to feedback from its customers, IBM seems to be leaning down OS/2 Warp's snazzy consumer image for a more corporate look so as not to scare off large customers.

The change in strategy came to light when Chairman Louis V. Gerstner Jr last week addressed a group of securities analysts and said IBM is focusing its OS/2 efforts on "large-enterprise, real serious, line-of-business applications."

Industry watchers quickly interpreted Gerstner's remarks as a concession of the desktop operating systems environment to Microsoft Corp. and a clear shift in IBM's OS/2 strategy.



IBM Chairman Louis V. Gerstner, Jr., responding during a meeting last Monday with securities analysts in New York:

"Stand-alone desktops are not our primary target. There are people out there who love OS/2 on that [stand-off] desktop, but our focus is on enterprise customers and real serious business uses."

Gerstner in a memo issued to IBM sales managers the following day:

"The consumer and stand-alone desktop markets for OS/2 are growing but are secondary to our emphasis on robust line-of-business client/server applications for our enterprise customers."

of Microsoft's forthcoming Windows 95.

"IBM got out marketed by Microsoft," said Frank Dubcek, president of Communications Network Architects, Inc. "OS/2 hasn't found its niche yet, which is likely to be distributed computing."

Loss of faith

But some said it was "IBM's OS/2 strategy *du jour*" that scared off potential software developers and confused big business customers.

A lot of [high-end] customers lost faith in IBM when it repositioned OS/2 as a "lost product," said Tarter, referring to IBM's push behind Warp, its most publicized version of OS/2.

For example, four users at Fortune 500 sites at Fortune 1,000 companies, who declined to be identified, said their corporations were thinking about dropping OS/2 in favor of Windows 95, Windows NT or a combination of the two. However, most said no decision had been made.

And IBM is even losing a little ground in markets where it has a strong following, such as the banking industry. Analysts estimate that 30 of the Top 50 U.S. banks use OS/2 somewhere in their organizations but that Windows NT is starting to make inroads at banks such as Bank South Corp. located in Atlanta.

IBM claims its primary focus was never on the consumer market anyway, but that small office and home users liked OS/2 Warp.

"We felt that we had to put more of a fashion spin on Warp," said Steve Mills, general manager of the Software Solutions division at IBM. "That certainly gets OS/2 a lot more attention, but our enterprise customers were quick to remind us that we shouldn't lose our way."

On longtime OS/2 user at a Fortune 100 company, "we are a big OS/2 shop, and the first time I saw the Warp ads with the pants and IBM computer sponsorship of the OS/2 Warp Fiesta Bowl, I got a little nervous about what direction IBM was taking OS/2 [in '93]."

David Card, an analyst at International Data Corp. in Mountain View, Calif., predicted that OS/2's push into the consumer market may ultimately cost it the high-end server space it once owned. "OS/2 was in the enthalist camp, now NT is ruling," he said.

Yet some industry watchers didn't see Gerstner's comments as an about-face on OS/2's positioning at all. And John W. Thompson, general manager of IBM's market and solution developer program, insisted, "We have not changed anything — our marketing and development budgets for OS/2 or our investment."

Senior editor Craig Stedman contributed to this story.

Enterprise users of OS/2 won't hear of IBM abandoning the operating system

By Craig Stedman

Even if Windows 95 and Windows NT combine to stomp the competition in the desktop and server markets, IBM has good reason to pull the plug on OS/2.

Its most loyal customers are demanding the off-distributed operating system kept from death's door.

While some large OS/2 users have started to evaluate Microsoft Corp.'s tandem team of Windows operating systems as future platforms (CW, Jan. 23), a half-dozen users interviewed last week said they remain devoted to OS/2. And because the computers with heavy investments in OS/2 tend to be large, mainframe-oriented businesses that run mission-critical applications on the platform, IBM's hands are pretty tied when it comes to supporting its desktop rival to Windows.

"We'd be furious" if IBM stopped developing OS/2, said Joe Waynick, assistant vice president of technical support at Union Bank in Monterey Park, Calif. "But I don't see that happening, not by a long shot. They're not going to pull the plug on 9 million users."

Union Bank, which still runs most applications on mainframes, is standardizing on OS/2 as its LAN and application server. Waynick said, All of its Novell, Inc. NetWare servers are being replaced with OS/2-based boxes. Most of the bank's 4,500 desktop PCs run Windows, but a branch automation project that is under way uses OS/2 for both desktops and servers, he added.

Rumor mill

With the official release of Windows 95 two weeks away, the fate of OS/2 has become grist for the speculation mill. IBM Chairman Louis V. Gerstner Jr.'s statement last week that OS/2's main focus is on "serious business uses" (see related story at left)

was seen partly as an attempt to salvage a key niche for the operating system no matter what happens in the general desktop market.

Large corporate customers are counting on IBM to do just that.

"There's a lot of commitment to OS/2 in the Guide organization, and we're the ones with the big books," said Linda Malsen, president of Guide International Corp., one of two mainframe-derived IBM user groups.

Steve Mills, general manager of IBM's Software Solutions division, agreed that most of OS/2's success comes in "large accounts and classical top-down, decision-making environments." Those customers typically buy "a lot more than just a desktop operating system," he said. "OS/2 is not the kind of thing we're going to walk away from because it impacts our total business."

Robert Djuricic, an analyst at Annex Research in Phoenix, estimated that OS/2's market share is 6.0% or more in the traditional corporate data processing environments that are IBM's biggest customers. That compares with an overall market share of less than 10% for the IBM operating system, he said.

"IBM is worried that if they killed OS/2, there would be repercussions in other areas," said Scott Walker, an analyst at Gartner Group, Inc. in Stamford, Conn. Abandoning OS/2 would "make harder politically" with customers now that IBM is solidly profitable again, he added.

"That would just be slit-tonging their own throats," agreed Cary Siefi, manager of applied technologies at Huntington Bancshares, Inc., in Columbus, Ohio. But IBM shows no sign of wavering on OS/2, he said.



IBM's Steve Mills: OS/2 "is not the kind of thing we're going to walk away from."



Golds International's Linda Malsen: "There's a lot of commitment to OS/2" of Guide

Blue about OS/2
What is your primary server operating system?

	NetWare/OS/2 LAN Server	Windows NT	Other
Base: 200 Fortune 1,000 companies	54%	2%	30%
Base: 53 IBM users from the 200 surveyed	61%	1%	17%

	Windows/OS/2	Windows NT	Other
Base: 200 Fortune 1,000 companies	40%	4%	4%
Base: 53 IBM users from the 200 surveyed	64%	1%	4%

Source: Deloitte, Inc., San Jose, Calif.

IBM's PowerPC is a streamer, but it lacks some ingredients. See page 40.



The World's Leading Manufacturing Software Can Help You Create Your Own Industrial Revolution.

What would you do with manufacturing software that could communicate real-time changes in volumes and product mix to plants all over the world? Or switch from one form of manufacturing to another, depending on changes in the market?

You'd start a revolution. And Customer Focused Manufacturing (CFM), created by Computer Associates, would help lead the way. A "blueprint" for enterprise manufacturing solutions, CFM lets you build closer relationships with the lifeblood of your business: your customers.

Because with CFM, you're involved in an ongoing dialogue with your entire supply chain. So you know exactly what can be delivered and when the delivery can take place.

And with CFM, a full range of multi-platform solutions helps you respond to customer demands both quickly and profitably.

For instance, CA-PRMS™ gives you the flexibility to easily meet your co-existent manufacturing needs with support for discrete, process and repetitive manufacturing.

CA-KBM™ incorporates and automates people-based product knowledge and dimensionally engineered-to-order configuration

where it's needed most: throughout the entire supply chain.

CA-MANMAN/X™ gives you the power to manage entire product life cycles — from engineering design to mass production — with real-time planning.

CA-MANMAN gives you immediate access to timely information and the ability to share that information across all manufacturing areas.

CA-CAS™ is an enterprise-wide manufacturing and financial management system that decentralizes decision-making by delivering critical customer-based information right to your users.

CA-Warehouse BOSS™ is a comprehensive warehouse management system that improves customer service by cutting order cycle times and increasing shipping accuracy.

**For More Information On CFM,
Please Call 1-800-225-5224, Dept. 16102.**

So phone today. And get a closer look at how Customer Focused Manufacturing can revolutionize your world.

**COMPUTER
ASSOCIATES**
Software superior by design

Customer Focused Manufacturing Software

CA-PRMS™ • CA-KBM™ • CA-MANMAN/X™ • CA-MANMAN™ • CA-CAS™ • CA-Warehouse BOSS™

© 1994 Computer Associates International, Inc., Melville, NY 11749-9000. All other product names referenced herein are trademarks of their respective companies.

3Com faces user angst

Customers frown on Chipcom deal; Cabletron drops own bid in order to pursue customer base

By Bob Wallace and Laura D'Andrea

3Com Corp.'s plan to acquire switching hub vendor Chipcom Corp. for \$775 million garnered mainly annoyed and befuddled reactions last week from users of both vendors' products.

Internetworking rival Cabletron Systems, Inc. hopes to capitalize on those feelings by dropping plans to acquire Chipcom itself, opting instead to launch an aggressive cash trade-in program for Chipcom users.

"The reason we were interested in Chipcom was for its customer base, not its technology," said Cabletron Chief Executive Officer Bob Levine. The vendor will give details of the program this week.

The acquisition of Chipcom would make 3Com a \$1.6 billion company, second only to market leader Cisco Systems, Inc. in the frenzied and crowded internetworking industry.

But details of the plan raised red flags among some loyal and long-standing 3Com customers.

"I don't see any benefit for users from 3Com acquiring Chipcom," said Steve Lopez, information systems manager at the National Board of Medical Examiners in Philadelphia. "Chipcom products can't hold a candle to 3Com's [switching hubs]. I want 3Com to focus its outstanding development and support efforts on its own products."

"3Com doesn't stand to lose anything if the deal doesn't go through, and I've got technical questions about product strategy if it does," Lopez said.

On the Chipcom side, customers openly balked at the idea of being forced to use 3Com switching hubs in the event that Chipcom's Galactica is no longer sold. 3Com has pledged to continue selling Galactica but said it won't develop any new models.

"We're very happy with Chipcom as a solution. If 3Com tells me that I have to buy its LANplex switching hub, I'll switch" to another vendor, said Alan Robson, director of information services at Val-Pak Direct Marketing Services, Inc. in Largo, Fla. "But as long as 3Com maintains the OnCore and Galactica lines, we'll continue to be a customer."

When asked how an acquisition of Chipcom would fit into 3Com's grand

product plan, some users were left scratching their heads.

"I've asked myself that question, and I haven't been able to come up with an answer," said John Holton, a vice president at Applications Profile, a 3Com user in St. Petersburg, Fla., that provides application screening and background investigation services.

Putting it together

3Com customers were also unsure how the respective 3Com/Chipcom product suites might be integrated if the deal goes through as planned in October.

"It would be silly to drop either line, since both are strong," said Dennis Bell, director of telecommunications at Santa Clara University in Santa Clara, Calif. "We've seen them integrate multiple products from past acquisitions, and it's amazing. They could embed them in a future product line."

The university uses several generations of 3Com products, including the Cellplex Asynchronous Transfer Mode switch that 3Com acquired in last year's purchase of NicsCom, Inc.

Still, 3Com users and analysts did agree that acquiring Chipcom would give 3Com a greater presence and more muscle industry-wide.

"If the deal goes through, 3Com will be in a stronger position to compete as the internetworking community consolidates. The competition is going to get fiercer from here on," said Steve Konrad, a network services manager for the Washington Schools Information Processing Cooperative in Seattle.



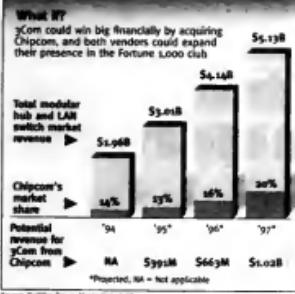
ROBERT LEVINE,
PRESIDENT, CABLETRON SYSTEMS

"We wanted a say in what happened to Chipcom because we felt that would be in the best interest of our customers. But it took us less than a week to see that a 3Com acquisition of Chipcom would not negatively impact our users."



BOB LEVINE,
PRESIDENT, CHIPCOM

"Cabletron only wanted to play the spoiler on the Chipcom deal. But they don't have the resources or will to do that."



Switching market gets some Grand additions

By Bob Wallace

"Fast" Ethernet pioneer Grand Junction Networks, Inc. will introduce this week two low-cost switches to the工作组Ethernet switching market and slash the price of its existing switch by 50%.

With Ethernet switching, users and devices that had been forced to share 10Mbps Ethernet LANs can now have their own personal 10Mbps of bandwidth. Or they can get more capacity by being part of a small subnetwork.

Grand Junction's FastSwitch 2100 has 25 switched ports that run at 10Mbps per port.

and two fixed 100Mbps ports. It has a list price of \$6,495, or \$341 per port, and is shipping now.

The FastSwitch 2100 also has 25 switched 10Mbps ports and a minimum of two high-speed expansion slots for 100Mbps ports. In the future, it will support Asynchronous Transfer Mode. It costs \$6,295 to \$7,295 or \$252 to \$292 per port. It will ship this month.

Skip MacAskill, a senior research analyst at Gartner Group, Inc. in Stamford, Conn., said that at \$240 per port, the FastSwitch 2100 is aggressively priced compared with similar switches from

3Com Corp. In fact, analysts said, the two vendors' prices for this kind of Ethernet switch are about the same.

The FastSwitch 2100 can support up to 1,024 media access control (MAC) addresses. This means the network manager can attach a single user or hundreds of users to each port.

Grand Junction was criticized for supporting only one MAC address per port on its first switch. Supporting many MAC addresses means users need fewer switching hubs. MacAskill said Grand Junction will ship a Unix-based program that will help users manage the new switch by year's end.

Meanwhile, Grand Junction has also halved the price of its desktop Ethernet FastSwitch 10/100. The new price is \$150 per port.

& Switching announcements boost mid-range LANs. See page 54.



ERIC BENHAMOU,
PRESIDENT, 3COM

"Together, we plan to merge the 'best in class' products, technologies and talent from both 3Com and Chipcom to provide the industry's broadest networking suite."

Database Performance

The TPC-C™ test is the industry standard benchmark measuring database On-Line Transaction Processing (OLTP) performance. On July 24, 1995, Hewlett-Packard published an audited TPC-C benchmark of Oracle7 that set the record for open systems performance, beating Sybase System 10's best result on any computer by more than 200%. (It's almost not worth mentioning, but we also creamed Informix.)



Sybase's CEO recognizes they have technology and performance problems. So should you.

"We were slow to realize this [scalability] was an issue in the marketplace."

Mark Hoffman, Sybase CEO, *The Wall Street Journal*, April 14, 1995

"We're trying to investigate the problems now. You peel back the onion, you find out more stuff."

Mark Hoffman, Sybase CEO, *San Francisco Chronicle*, April 5, 1995

Experts and customers recognize that Sybase's problems will take a long time to fix. So should you.

"The time between major enhancements of their [Sybase's] database is the longest of any major vendor."

Salomon Brothers, *Computerworld*, April 17, 1995

"They've got a lot of work to do and they have to go pretty deep in the core of the code."

Fest Albany, *Information Week*, April 17, 1995

Scalability and parallelism make Oracle7 the technology and performance leader. The results of the HP TPC-C benchmark provide graphic proof.

"Oracle has set the high water mark for open systems platforms. We look for more to come."

Jim Johnson, Chairman, Standard Group, July 24, 1995

"Oracle's TPC-C numbers dramatically alter the competitive landscape... Oracle is telling the competition to put up or shut-up."

Peter Kastner, Vice President, *Aberdeen Group*, July 24, 1995

If you don't have time to wait for a database that is slow to run transactions or a company that is slow to fix its technology call Oracle, the proven performance leader. Find us at 1-800-633-1071, ext. 8193 or <http://www.oracle.com/> on the Web.

ORACLE®

Enabling the Information Age

Users welcome Exchange as Mail 3.2 upgrade

Microsoft ships final beta code for mail platform

By Suruchi Mohan

After many months of falling behind schedule, Microsoft Corp. last week started shipping the final beta code for its Exchange mail platform.

Yet despite the company's positioning of Exchange as a client/server messaging platform, users are looking to it mainly as a stable upgrade to Microsoft Mail 3.2.

Exchange includes electronic mail, group scheduling, forms and basic application development. It also includes features to make administration and management of mail simpler (see chart).

Steady focus

But the focus is still E-mail. "Microsoft's priority is its installed base, so it will fix problems with Microsoft Mail and then think about application development," said Tim Blasen, an analyst at Aberdeen Group Inc. in Boston.

Blasen noted that Microsoft wants to provide a smooth migration to its more than 6 million Mail customers. "Because it is so focused on the installed base mail issues, Microsoft is keeping its eye off the growing market of groupware and dis-

tributed solutions, which is being dominated by Notes," he said.

Microsoft has long positioned Exchange as a competitor to Lotus Development Corp.'s Notes.

But users, fed up

with the administrative hassles of Mail, don't care about application development for now. They are just relieved that Exchange shows promise for solving their reliability and scalability troubles with Mail.

"With Beta 1, I never got above 100 users," said Tom Webb, technology project manager at Shell Services Co. in Houston. Indeed, he said, the database crashed a couple of times. "With Beta 2, I have seen performance improvements," he said.

Users consider scalability of the Exchange server to be a big plus. While ad-

ministrators are not completely sure how many users the Exchange server will eventually support, they seem confident that the number will range from 500 to 1,000, if not more. Microsoft Mail supports a maximum of 250 users per post office.

Making sure these post offices are current and synchronized is a headache, said Gartt Keezer, staff consultant at Intergraph Corp., a computer systems vendor in Huntsville, Ala. "Exchange doesn't eliminate [the maintenance] but simplifies the process. Adding post offices is easier because the server takes care of notifying and synchronizing other post offices," he said.

Further, Exchange offers message tracking, said Sharon Moore, a systems analyst at Chevron Information Technology Co. in San Ramon, Calif. "This is a vast improvement over

Beta 1," she said. Moore explained that a queue manager in Exchange lets administrators see if mail is backed up in the post office, which allows them to track mail across multiple sites. "This is very helpful for management," she said.

Unresolved issues

Despite the ease of administration, users have items on their wish list that will remain unaddressed in the first release of Exchange.

"I would like to see it ship, I would like to see laptop replication," Webb said. The mail and calendaring will replicate to the laptop, he explained, but not to the public folders. Here, the replication will be only server to server.

Also, "real" document management—with version control and content searching capabilities—is missing, Moore said. While it is true that Microsoft provides components for building document management applications, to do so would require "going through extra pain," she said.

Greg Levin, lead product manager on Exchange, said the features in this beta are complete. User recommendations will be worked into release candidates, to be followed by the final product at the end of the year, he said.

News Shorts

Bankruptcy shutters Cray Computer

Cray Computer Corp. recently closed its doors for good after a four-month search for new funding proved fruitless. The Colorado Springs-based company, the latest venture of supercomputing legend Seymour Cray, shut down operations and filed for Chapter 11 bankruptcy protection in late March after an expected \$80 million cash infusion fell apart. Cray Computer burned through more than \$200 million in capital but never sold a system after its 1989 spin-off from supercomputer market leader Cray Research, Inc., which had no ties to the failed company.

AST loses \$99.3M in '95

Struggling PC maker AST Research, Inc. lost \$99.3 million in its fiscal year 1995 on sales of \$2.5 billion. For fiscal 1994, AST had earned \$31.2 million on sales of \$2.4 billion. For the fourth quarter, AST lost \$31.6 million on sales of \$62.2 million, compared with a loss of \$6.1 million on sales of \$55.4 million for the same period the year before. The company completed a strategic alliance with Korea's Samsung Group earlier this year, giving the latter a 40% stake.

Mobile management

A task force aimed at addressing the concerns of network administrators who manage mobile users was launched this week at the TCP/IP Expo in San Jose, Calif. Spearheaded by Epsilon Technology Corp. and Xircom, Inc., the Mobile Management Task Force will work on finalizing the Simple Network Management Protocol (SNMP) Mobile Management Information Base

(MMIB). That will then be presented to the Internet Engineering Task Force as a MMIB extension of the SNMP.

Nader takes on Gates

Consumer activist Ralph Nader and an affiliated group, the Consumer Project on Technology in Washington, last week joined the criticism of Microsoft Corp.'s decision to bundle The Microsoft Network access software with Windows 95. Nader also criticized the Windows 95 Registration Wizard, which collects information about a user's PC, calling it an invasion of privacy.

No-RISC Internet router

Comptel Systems, Inc. in Boulder, Colo., has opened the throttle on Internet access with the release of the high-speed RISC Router 28000, which lets users establish links to the Internet at T1 speeds over leased, switched or integrated Services Digital Network lines. The RISC Router 28001 lists for \$2,195 and is shipping now.

Keeping out NetWare users

Internetware, Inc. has begun shipping NetWare Connect Version 1.1, which lets network administrators limit and control Novell, Inc. NetWare users' access to unwanted Internet sites. NetWare Connect is a NetWare Loadable Module that runs on top of the TCP/IP protocol stack bundled in every NetWare server. Pricing begins at \$675 for a five-user license.

Boole & Babbage posts profit

Boole & Babbage, Inc. reported a profit of \$2 million for its third quarter ended June 30 on revenue of \$37.3 million. This compares with a profit of \$22.6 million and \$38 million in revenue for the same period last year. The low profit last year was due to a research and development write-off of \$3.2 million. The client/server software vendor said international business picked up greatly this past quarter, though North American revenue was down.

Kodak licenses CA programs

Eastman Kodak Co. signed a multi-year software licensing agreement with Computer Associates International, Inc., under which Kodak and outsourcing partner Integrated Systems Solutions Corp. will be able to run CA database and systems management software throughout North and South America. Terms of the deal were not disclosed. Separately, CA said it received 91% of Legent Corp.'s outstanding

common stock in response to its \$47.35-per-share tender offer (see story, page 32).

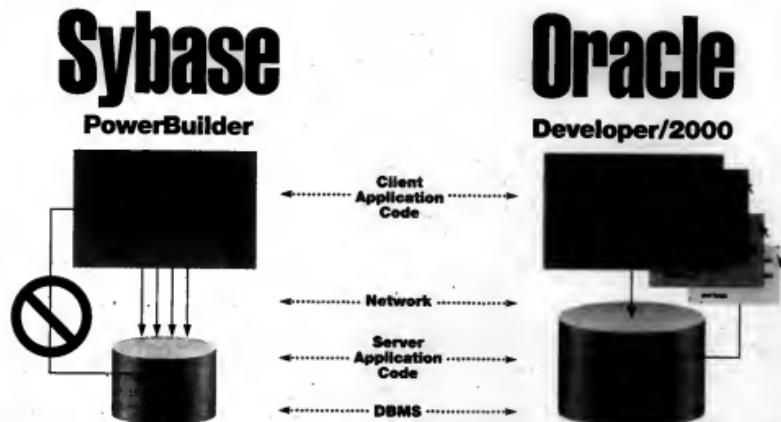
IBM makes Italian link

IBM and STET, the Italian holding company that owns Telecom Italia, announced a preliminary agreement to become global partners on a wide range of business and consumer services. The two companies will combine their backbone networks as part of a 50/50 global joint venture and provide value-added telecommunications and network services. Both firms expect to expand the venture in the coming months to include additional telecommunications service providers.

SHORT TAKES Robert B. Palmer, chairman, president and chief executive officer at Digital Equipment Corp., was named chairman of the Computer Systems Policy Project, a coalition of CEOs from 13 U.S. computer companies... Walker, Riecher & Quinn, Inc. Seattle last week added a new version of its Windows PC connectivity software for Hewlett-Packard Co. and Digital Equipment Corp. hosts... Hewlett-Packard cut prices on its PC servers by up to 5% and on storage capacity by as much as 25%... Although it is in the process of being bought by Adobe Systems, Inc., Frame Technology Corp. recently completed its acquisition of Mastersoft, Inc.... Areca Software, Inc. has acquired Sytron Corp., a maker of OS/2 data protection software and a subsidiary of Reson, Inc.

A p p l i c a t i o n P a r t i t i o n i n g

The network links the client to the server. The client and the server communicate by sending messages across this network. The number of messages exchanged between the client and the server is critical in determining overall system performance. Oracle Developer/2000 drag and drop application partitioning makes it easy to minimize the number of messages exchanged between a client and a server, optimizing both response time and system performance.



PowerScript does not run on the server therefore drag and drop application partitioning is impossible

PL/SQL runs on the client and server therefore drag and drop application partitioning is easy

An application program developed with Sybase PowerBuilder 4.0 must run entirely on the client computer. The above program enters a purchase order into the database. If this application is built entirely using PowerBuilder 4.0, every item purchased requires a separate pair of messages to be exchanged between the client and the server computer. Therefore, a simple ten-line purchase order requires at least 20 messages to be passed on the network. This high volume of message traffic will slow response time for an individual user, and bottleneck the entire system with a large number of users. And there is no easy way to fix this.

Contrast this with the same exact application written with Developer/2000 and tuned using drag and drop application partitioning. It takes a few seconds to drag that portion of the application that communicates with the DBMS off the client computer and drop it onto the server. Now, when you enter a purchase order using the newly partitioned application, only one pair of messages is sent from the client to the server—regardless of how many items are in the order. The optimally partitioned application delivers instantaneous response time to an individual user. And the partitioned application can support ten times more users than when the application ran entirely on the client computer. If you have more than a handful of users on your network, call Oracle for scalable software. 1-800-633-1071, ext. 8192.

Seeing Is Believing!

Watch a video of Larry Ellison showing you how to take advantage of the second generation client/server technology in Developer/2000. Download Larry's demo off the net at <http://www.oracle.com/info/video.html>, call for a free video 1-800-633-1071, Ext. 8192.

ORACLE®

Enabling the Information Age

News

Sprint boosts ATM appeal with T1 access

By Bob Wallace

Sprint Corp. last week smashed through the biggest barrier to wide-scale user adoption of Asynchronous Transfer Mode (ATM) by finally providing access to the service via widely used, lower-speed T1 lines.

While analysts who track ATM concur that the line's share of users can't afford 45Mbps (T3) access rates, which aren't widely available anyway, they predict a huge user base will find 1.544Mbps (T1) access to ATM far more affordable.

"T1 access to ATM provides a strong

incentive for users to move to ATM," said Bill Horst, chief of the General Services Administration's telecommunications branch in Philadelphia.

Pricing for a T1 access line can start at as little as \$3,000, while pricing for a T3 access line starts at about \$20,000," said Beth Gage, broadband consultant at

TeleChoice, Inc. in Verona, N.J. "And Sprint is making its ATM service even more attractive by pricing it comparable to its frame-relay service."

Sprint's frame-relay pricing carries a monthly charge that ranges from \$204 for a 56K/64K bps/sec. port to \$860 for a 512K bps/sec. port. The carrier charges \$1,800 for a T1 port. Sprint charges users a one-time \$250 fee per port.

So for the price of its widely used frame-relay data service, users can send video and voice over a single high-speed line to the Sprint network.

That's service

Sprint's ATM service allows T1 access to two key types of services

Service type What is it?

Constant bit rate Provides constant bandwidth for voice and video traffic that can't tolerate transmission delays.

Variable bit rate Supports bursts of data traffic associated with video connection that don't need constant bandwidth.

But there is a drawback. Analysts note that running ATM on a T1 results in the loss of roughly 10% of that line to overhead, a key issue for some users.

"That's a concern for us because we want to perform video transfers, and we probably can't afford to lose 10% of the bandwidth to overhead," said Camille Samaha, a network engineer at Thomson Technology Services in Rockville, Md. "We'll explore other alternatives."

Nonetheless, Sprint's move is the latest in a recent flurry of activity—including deep ATM switch price cuts and equipment introductions—aimed at making ATM more palatable to the masses.

Leader of the pack

Sprint is the first of the Top 4 long-distance carriers to offer T1 access nationwide, though AT&T Corp. says it will follow suit by year's end. MCI Communications Corp. said it is developing the capability, and WitTel provides T1 access on a case-by-case basis.

Sprint began supporting T3 access to its ATM service in 1993. But carriers have complained that a dearth of equipment for their networks and gear users need to make the service has held up support of T1 access to ATM.

To address the problem, the company has worked with Biscell Ltd. to develop a network switch that can aggregate multiple T1 access lines into T3 links to the carrier's ATM backbone network, which uses NEC America, Inc. switches.

Sprint is also working with Foresystems, Inc., using its AXB-2000X ATM switch, and ADC Kestrel, using its T1/E1 Access Concentrator, to provide more easily needed on-site access equipment to users.



Once you venture

into Client/server, there's no turning back. So YOU



You already know where you want to go with client/server. But do you know exactly how you're going to get there?

Fortunately, there are plenty of companies that can tell you

Such as the multi-billion dollar bank, handling as many as 120,000 calls a day, that completely reconfigured its customer service operations. The giant retailing conglomerate that totally reengineered its customer database infra-

structure for 500 stores. The information systems developer that integrated a central government wage and tax system into its accounting and purchasing systems.

All had ambitious business plans, a large number of end users, and an urgent need to support rapidly-changing business processes.

All chose Seer+HPS to develop client/server solutions across their enterprise.

And all found their journey into client/server to be challenging yet extremely rewarding. Mainly because they had the ideal traveling companion Seer

SEER®
We've been there.

Venturing
client/
server

Call 1-800-459-2276
to learn how others
used Seer+HPS for a
successful journey
through client/server.



Micro Focus® BridgeWare™

There's no denying it. PowerBuilder™ and Visual Basic™ allow your users to do some

**No matter where you start with your 4GL,
you'll eventually want it to do
something that seems impossible.**

great things. Linking those desktop app's to your corporate business systems, however, is a fairly daunting prospect.

Only one product can help you with the task. Micro Focus BridgeWare. No complicated API coding. No tedious retraining. BridgeWare automatically generates all of the code needed to connect your PowerBuilder or Visual Basic environment to your COBOL or CICS® system. Did you get that? It does it all automatically.

On average, 80% of mission critical corporate data is in non-relational files where it can't be accessed by 4GLs. BridgeWare connects the "islands" of 4GL users to that corporate data, making it more useful, more meaningful and as familiar as your existing 4GL applications.

So, regardless of where you want to go with PowerBuilder or Visual Basic, BridgeWare makes connecting the enterprise applications to the desktop as easy as... well... riding a bike.

**See for yourself.
Contact Micro Focus
at 800 MFCOBOL
Ext. 1204 and ask
for your copy of
the Micro Focus
BridgeWare demo.**



A Better Way of Programming™ **MICRO FOCUS®**

Micro Focus is a registered trademark. BridgeWare and "A better way of programming" are trademarks of Micro Focus External. PowerBuilder is a trademark of Progress and Visual Basic is a trademark of Microsoft. "See for yourself" Micro Focus Transaction System.

TV-quality video comes to the portable market

But will users want a notebook that costs over \$7,000 and weighs about 8 pounds?

By Mindy Blodgett
and Tim Ouellette

Panasonic Personal Computer Co. pulled ahead of the multimedia notebook pack last week with the announcement of a full-screen, full-motion video enhancement to its V41 portable computer series. But industry sources said IBM PC Co. is hot on its heels with a similar product.

Panasonic and IBM are banking on what they hope will be a growing market for notebooks with analog, television-quality features.

Yet while some industry observers say the full-featured multimedia notebooks are the logical next step for mobile users, the heavy price tag — averaging more than \$7,000 — may dissuade early adopters. Another burden is the weight and size of the machines. The Panasonic system tips the scales at about 8 pounds, for instance.

With its Intel Corp. 90-MHz Pentium processor and an integrated CD-ROM drive, the Panasonic notebook is the first on the market to offer the option of Motion Picture Experts Group (MPEG) support — the full-screen, full-motion standard that provides video playback with 262,000 colors.

The notebook is aimed at markets such as field service automation, interactive training, sales presentations, research and data retrieval, company officials said.

Ahead of the pack

IBM has gathered the most momentum in the current notebook market with its ThinkPad series, analysts note. Other major companies, including Compaq Computer Corp., Toshiba America Information Systems, Inc. and Digital Equipment Corp., are working on or have released new multimedia notebooks as well.

"Panasonic has been in the front of this," said Timothy Schmidt, an analyst at Esource Consulting Group, Inc. in Orlando, Fla. "And they may well be right — there may be a market."

At pharmaceutical company Park Davis, for example, 300 field service representatives are using Panasonic's V41 multimedia notebooks to give their sales pitches some razzle-dazzle.

"Our sales force finds that the

multimedia function adds a real wow factor to meetings," said Christopher Colucci, a project manager at Park Davis, the pharmaceutical division of the Warner Lambert Co. in Morris Plains, N.J. Colucci is testing the new Pentium machines. "I can really see the possibility of using these machines

over his notebook with his car, and all we had to replace was the CD-ROM. The hard drive held up," Colucci said.

Some mobile users remain skeptical that multimedia notebooks deserve a driving need right now, however.

Victor E. Mutajcic, a corporate vice president at New York Life Insurance Co. in New York, said he sees many of the company's 60,000-plus sales representatives eventually moving into the multimedia notebook arena. But he has his doubts.

"A lot of our sales reps say those types of computers come between them and the client," Mutajcic explained. "It's like walking and saying, 'OK, now I want you to write my TVC and the client is saying, 'No, I want you to sell me on this, not the computer!'"

The top-of-the-line Panasonic Pentium machine costs \$7,000, plus \$649 for the MPEG cartridge, making it a prohibitive cost for most users.

Other notebook products on the horizon include IBM's ThinkPad 760 notebook, the first to have a 12.1-in. thin film transistor LCD screen; 32MB bytes to 56 bytes of RAM; and More than six hours of battery life for many things, such as training," he said.

Features of the Panasonic V41 MK II multimedia notebook include:

- 90-MHz Pentium processor
- High-contrast, nonglare, 10.4-in. thin film transistor LCD screen
- 32MB bytes to 56 bytes of RAM
- More than six hours of battery life

for many things, such as training," he said.

But the heavier weight of the notebook "is definitely an issue," he added. Still, the trade-off for the more ruggedized features for the extra weight is a fair one, he said.

"One of our salespeople actually



Features of the Panasonic V41 MK II multimedia notebook include:

- 90-MHz Pentium processor
- High-contrast, nonglare, 10.4-in. thin film transistor LCD screen
- 32MB bytes to 56 bytes of RAM
- More than six hours of battery life

for many things, such as training," he said.

But the heavier weight of the notebook "is definitely an issue," he added. Still, the trade-off for the more ruggedized features for the extra weight is a fair one, he said.

"One of our salespeople actually

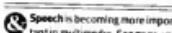
Intel/HP chip to jointly offer Unix, Windows

Will also run NT, NetWare

By Joan S. Bowman

Hewlett-Packard Co. plans to bundle its Unix operating system and Windows on at least one of the 64-bit chips it is jointly developing with Intel Corp., company executives said last week.

Industry analysts said they expect those chips to arrive sometime in 1997.



Speech is becoming more important in multimedia. See page 47.

The Unix/Windows combination would eliminate the need to emulate Windows on Unix machines such as engineering workstations. Combining the two would also remove an information systems headache because Windows emulation and translation slow performance.

Rich Seveik, general manager of HP's systems technology group, said a special effort will be made to combine the HP/UX Unix operating system with a Microsoft Corp. Windows 95 follow-on. The combination targets Unix users who want to use Microsoft's office applications.

"To get operating systems to coexist in a lot of work," said Seveik, who manages HP's relationship with Intel's chip design

team. The chip series ranges from low-cost chips for desktops and laptops to high-performance chips for servers. They will run Unix, Windows NT and Novell, Inc.'s NetWare.

Intel shelves NSP interface

By Tim Ouellette

■ Intel Corp. will temporarily curtail development of its Native Signal Processing (NSP) interface, the company confirmed last week. The decision appears to be in response to high-level pressure from Microsoft Corp. over the multi-media-enabling technology, according to sources near the companies.

An Intel spokesman denied any heat from Microsoft, saying, "We are working with Microsoft to define a new baseline platform." But several sources with close ties to the two firms said Microsoft executives were angered at what they perceived as Intel's effort to create a non-Microsoft-driven application programming interface and lobbied intensively to get Intel to stop NSP efforts.

NSP would improve ease of use for multimedia applications by managing sound, graphics and communications at the processor level. That would free users from sound cards, graphics cards, video cards and, eventually, modems. NSP was the centerpiece of Intel President and Chief Executive Officer Andrew Grove's keynote address at Comdex/Fall '94 and was expected to be completed later this month.

But users will have to keep dazing the peripheral card shuffle for a while longer. The spokesman said Intel will publish a document later this year or early next year that defines the new platform.

Strike 2

Dean McCarron, principal at Mercury Research in Scottsdale, Ariz., said the flap is another dent in Intel's efforts to push multimedia, following the company's stagnated ProShare videoconferencing initiative. McCarron said Intel wants to get computing-intensive applications such as multimedia on the market to drive future sales of its next-generation chips.

Microsoft's Windows 95 will contain some of the basic capabilities of NSP Intel started to develop on Windows 3.1 and Windows 95, but has since moved its focus to Windows 95 only.

The Unix/Windows combination would eliminate the need to emulate Windows on Unix machines such as engineering workstations. Combining the two would also remove an information systems headache because Windows emulation and translation slow performance.

Rich Seveik, general manager of HP's systems technology group, said a special effort will be made to combine the HP/UX Unix operating system with a Microsoft Corp. Windows 95 follow-on. The combination targets Unix users who want to use Microsoft's office applications.

"To get operating systems to coexist in a lot of work," said Seveik, who manages HP's relationship with Intel's chip design

team. The chip series ranges from low-cost chips for desktops and laptops to high-performance chips for servers. They will run Unix, Windows NT and Novell, Inc.'s NetWare.

"We will be able to run any of those operating systems on any of those chips," he said.

But the mechanics of how HP will pull off the Unix/Windows combination on a single chip are still unclear, said Thomas Kuchary, president of Summit Strategies, Inc. in Boston.

It would be easier to simply graft Windows 95's 32-bit application programming interfaces on top of HP's Unix system, said Andrew Allison, a microprocessor analyst in Carmel, Calif. That is something Digital Equipment Corp. is already taking steps to do with Digital Unix, he noted.

■ Native signal processing (NSP) would manage sound, graphics and communications at the processor level. That would free users from sound cards, graphics cards, video cards and, eventually, modems.



Recently,
Client/Server Journal
profiled the
best and brightest
companies using
distributed computing.



*It turned out to be a profile on
Sybase customers.*

In a special report on client/server excellence, many of the companies profiled had one thing in common—SYBASE®. In fact, four of *Client/Server Journal's* "Fabulous Five"** were using SYBASE to gain a competitive advantage. These companies included Fannie Mae, Chase Manhattan Bank NA, Hughes Space and Communications Co., and Global Marine, Inc. Some of the most successful companies in the world. For more information on how your company can achieve excellence with Sybase, or a reprint of the *Client/Server Journal* special report, call 1-800-SYBASE-1 ext. 1294.

SYBASE
The Architecture for Change

Digital earnings hit mark

Cost-cutting plan, continued sales growth lead to year-end profit

By Michael Goldberg

A day before announcing closer business ties with Microdata Corp., Digital Equipment Corp. last week reported earnings of \$180 million in its fourth quarter and a year-end profit for the first time since 1990.

Robert Palmer, Digital's chairman and chief executive officer, said the company is working to "booster its turnaround after more than a year of stabilizing payroll and reorganizing its business management."

"We'll continue to make any corrections we need to make" to return to market conditions, Palmer said. He said he believes Digital is poised to sustain its recent trend of profit next year.

The company benefited from a sustained cost-cutting program, and Digital officials said continued sales growth in PCs and Alpha servers and workstations more than offsets dropping sales of its old VAX line.

Palmer said sales of Digital's Alpha serv-

ers and workstations grew by 32% during the quarter, compared with the same quarter last year. Digital has sold more than 127,000 systems based on its 64-bit Alpha microprocessor since late 1992, accounting for approximately \$5 billion in sales, Palmer said. PC sales climbed about 20% in the quarter vs. the same quarter last year.

Changing the PC guard

Company officials said they were disappointed in the PC business growth in which Digital ranked 11th at the start of this year, according to a survey by Datquest, last Thursday. Digital announced the abrupt resignation of Bernhard Auer head of its PC business unit and a former Compaq Computer Corp. executive.

At the same time, company officials said revenue drawn from sales and service of its VAX line of computers dropped. Digital declined to specify by how much, but analysts said the company estimated VAX product

sales had dropped by 35% to 50% in the past three months.

Digital also told analysts its new reliance on resellers and retailers would sap some sales muscle from its traditionally strong fourth quarter because these indirect channels tend to peak at the calendar year's end.

Martin Rosslinger, an analyst at Duff & Phelps Investment Research, Inc. in Chicago, said Digital's fourth-quarter sales looked better when divestments such as "a fire sale" on VAX systems to clear out inventory were taken into account. "It might have been better," he said. "They've gone through a pretty extreme turnover with a changing sales structure" to emphasize resellers.

Others expressed doubts about Digital's progress. A rising tide of technology investments should have lifted Digital's profit last higher, said Donald Brown, chairman of D. H. Brown Associates, Inc. in Port Chester, N.Y. Digital fails to match other vendors such as IBM, Hewlett-Packard Co. and Sun Microsystems, Inc. in product revenue growth.

Windows NT

CONTINUED FROM PAGE I

tering technology for future versions of Windows NT (see story below).

Clustering, which uses a combination of hardware, software and shared memory, is a way to connect separate servers into one loosely coupled computer system.

"It's a wise move by both parties. The clustering software that DEC has developed over a number of years is extremely good," said Lynn Blackburn, MBS director at Pico Co., a marketing firm in Santa Monica, Calif. "Why should Microsoft have to reinvent the wheel for something that's already there?"

Blackburn said the deal would prompt him to consider using Windows NT in his shop, which has three clustered Digital

MicroVAX computers and a PC LAN.

Microsoft also promises to ship future software packages for Digital's Alpha systems at the same time that versions for Intel Corp. or RISC-based systems go out the door (see chart).

Yellow Pages publisher Pacific Bell Directory in San Francisco is evaluating Windows NT as a server platform for distributed systems, said Christopher Lloyd, a technical staffer.

From a corporate standpoint, Windows NT needs to be a much more robust platform for distributed computing" than Windows 3.1, Lloyd said. Pacific Bell Directory's 18,000-user site has long had a combination of Digital servers and Macintoshes.

The ultimate goal of both companies is to have enterprise computing environments "look and feel like a seamless extension of a Windows desktop to the user," said Robert Palmer, Digital's

chairman and chief executive officer.

Access to Digital's 10,000-person multi-tier server service will help Microsoft address its weaknesses in customer service and systems integration, said Jon Orlitzk, an analyst at Forrester Research, Inc. in Cambridge, Mass.

"That's been the wild card that the Unix guys have been trying to play" as they compete against Windows NT, he said.

"For Digital, this [pact] gets them really in the front car of the NT train, which right now is gaining momentum," Orlitzk added. "It really puts them ahead of the

rest of the vendors like Unisys and AT&T GBS."

But not everyone applauded the tighter tie binding the two vendors. In Shreveport, president of Metamore Technologies Ltd., a Chicago consulting firm, said Digital gave up too much to Microsoft by sharing its clustering technology. "Digital is desperate. They're trying to gain hardware market share in the NT segment," Shapiro said.

The Windows NT installed base stands at about 1.25 million, with an estimated 1.4 million units ready to ship this year and another 4 million units next year, according to Computer Intelligence Corp. in La Jolla, Calif.

Trailing behind

Digital's share of the Windows NT market — less than 2% — is far behind market leader Compaq Computer Corp., said Scott Winkler, a vice president at Gartner Group, Inc. in Stamford, Conn. Following an industry trend, most Digital machines running on NT are powered by Intel chips.

Regardless of how much the deal promises, some Digital users don't see Microsoft server systems in their future.

A lack of Windows NT versions of key applications running at the Department of Public Works in Sacramento, Calif., will keep that city agency a mostly Digital shop, said Renée Traud, a senior departmental data analyst there.

Senior editor Kim S. Nash contributed to this story.

Clustering strength

Without the serving grace of Digital's clustering technology, Microsoft would face an uphill climb as it tries to link multiple Windows NT servers together, industry analysts said last week.

Along the way, the leading PC software vendor would find it hard to displace large Unix servers in corporate environments with its relatively new 32-bit operating system. So to make its mark in the enterprise, NT must tie together more processors than the four it can currently handle, Microsoft Chief Executive Officer Bill Gates acknowledged last week.

"It's tough to get up above eight or 16 processors [on a common memory

bus] and see much benefit," Gates said. Unix servers, however, can now scale to 32 or 64 processors.

Digital plans to leverage Digital's clustering capabilities on arrays of smaller NT servers tied with networking and database software. The quick fix will arrive later this year, when Digital ships its NT clustering technology, which is now in its shake-down phase.

Database lab

To boost the capabilities of NT server arrays, Microsoft is starting up a parallel database lab in San Francisco. Heading the effort is Jim Gray, who was a database architect at Digital and IBM. Gordon Bell, a Microsoft technical

adviser and designer of Digital's VAX, recently joined the project as well.

"Upgrading from the desktop is going to just totally wipe out downtime," Bell said last week. He said information systems built from PC parts, high-speed networks and distributed databases will be cost-effective alternatives to large-scale multiprocessors.

Gray said his team is nearing completion of application interfaces that use X/Open Co.'s XA transaction manager standard to link NT-based Microsoft SQL Server databases. The code is set to appear in NT within a year — and it could become a de facto standard through massive NT sales, he said.

"You can stack lots and lots of database systems side by side," Gray said. "It's a poor man's distributed database."

— Jean S. Borner

Q Digital adds to its virtual LAN lines. See page 54.

AT&T GIS pitches multiprocessor NT Server

By Stuart J. Johnston

AT&T Corp.'s Global Information Solutions unit is now selling Microsoft Corp.'s Windows NT Server on multiprocessor servers with up to 16 processors, but there's a catch — NT doesn't appear to run well on 16 processors.

Even Microsoft Chairman Bill Gates admits that beyond four processors, NT users don't "see much benefit." (See story, page 14.) Nonetheless, AT&T GIS is pitching its 2500 series multiprocessor machines to customers interested in cutting costs by consolidating LAN servers.

Some users interested in such machines say the message they get from Microsoft is that NT Version 3.51 and SQL Server 6.0 are more scalable than previous versions, but claims of good performance do not go as far as 16 processors.

AT&T NT

AT&T GIS says it's living up to its promise to port its Unix-based enterprise systems management tools to Windows NT.

Now shipping

Server Availability Manager — Server management and fail-over support
NetVault — Comprehensive data management and tape storage system

Shipping by year's end

LifeKeeper — Fault-tolerant support
OneVision — Network and systems management

CommVault — Fully automated optical backup/recovery system

Top End — Middleware for managing applications in distributed systems

Advanced Server for Unix — NT's network operating system running on Unix

"The last time I talked to [Microsoft], they said NT scales to six or eight processors," said Collo Carpi, president of Chartwell Advisory Services in Penn Valley, Pa. "They have advised me that if I want to NT for a large on-line transaction processing system, that I'm better off using a network of relatively small machines [with four processors each]."

AT&T executives acknowledged that 16 processors might not be realistic but emphasized that they are trying to "estimate the market" on the notion that four processors is not a permanent limitation, said Martin Sianotti, marketing director for software at AT&T GIS.

Customers can reduce costs by using symmetrical multiprocessing (SMP) servers, which leverage multiple processors to allow one box to do the work of several servers, according to AT&T GIS. Traditionally, PC server operating systems have performed poorly in SMP environments, so some saw the 32-bit NT as a potential boost for the technology.

Yet benchmarks provided by both AT&T GIS and Microsoft show that where SMP servers run a single application,

performance starts to taper off at around six processors. Most PC server makers cap their SMP configurations at four processors for performance reasons.

Still, NT may get a chance to prove itself later this year, when Microsoft finally ships its Exchange messaging server.

"I can promise that with Exchange

[Server] coming this winter, it's going to be an asset having [a] machine like [the AT&T box]," said Brionne Stephens, coordinator for space sciences in the Advanced Scientific Information Systems group at NASA in Huntsville, Ala.

However, analysts were skeptical. "I'd be surprised because a mail application

is I/O bound, and that is where you see a limitation to scalability," said Philip Johnson, director of Unix and advanced operating environments at International Data Corp. in Mountain View, Calif.

 IBM's PowerPC is a screamer but lacks a lot of needed ingredients. See page 40.

Follow the Red Brick Road.

Data Warehousing

We've put major corporations on the road to data warehousing success since 1986 — without the hype.

Your job is to build a data warehouse, a massive collection of corporate data from a dozen different production systems with billions of records, hundreds of users, and performance requirements that simply seem unreal. With 85 different vendors swerving in front of you, is it any wonder why you want off this crazy road?

Red Brick cuts the hype with hard facts that can put you squarely on the road to data warehouse success.

Our relational database, Red Brick Warehouse™ VPT, is specialized for building data warehouses and is commonly 10-20 times faster at processing complex queries than other RDBMSs.

 RED BRICK®

Call 1-800-777-2565

Fax 408 366 5277 • Email: info@redbrick.com • Web: <http://www.redbrick.com>

Call today to order as many copies of our Data Warehousing Primer as you'd like. They're free!



Digitalink, ParcPlace outline merger plan

By Elizabeth Heichler

ParcPlace Systems, Inc. and **Digitalink**, Inc. last week laid their cards on the table. The two Smalltalk market leaders, who announced merger plans in May, used a joint conference to detail a road map of how two previously competing product lines will be integrated.

The companies also showed a sneak preview of a technology code-named **Widewalk** that will allow customers to deploy applications on the World Wide Web without worrying about differences among Web browsers.

The merger, which should be finalized this month, will create **ParcPlace-Digitalink, Inc.**, encompassing the new company the two share of the market for the

Merge at ParcPlace

Schedule for the ParcPlace-Digitalink product-line merger

Q3 1995

New release of each company's products (VSE 3.1 and VW 2.5) as previously scheduled, but with some improvements so they are more compatible and syntax-compatible

Q4 1995

Release of VanGogh 1.0 — converged product based on VW that incorporates key features of VSE

Smalltalk object-oriented programming language, according to International Data Corp., a market research firm in Framingham, Mass.

Stamp of approval

Users gave a thumbs-up to an aggressive schedule that calls for delivery next quarter of new versions of each company's Smalltalk development tools — **ParcPlace's** VisualWorks (VW) and **Digitalink's** Visual Smalltalk Enterprise (VSE) — enhanced to be language- and syntax-compatible. VisualWorks has been known for its broad cross-platform and server support, while VSE has been considered a strong desktop offering.

These products will be followed by delivery early next year of a merged Smalltalk development environment called **VanGogh**. The product will be based on VisualWorks but will incorporate several key features of VSE, according to Bill Lyons, who will be president and chief executive officer of the merged company.

Elements of Digitalink's VSE that

will be incorporated into VanGogh include the following:

- The Parts workbench for assembling applications from components.
- Team development support, known as TeamV.
- Smalltalk Link Libraries.
- Wrapping technologies for integrating legacy Cobol and CICS applications.
- Windows 95 compliance.

VanGogh "will leverage the best of both product offerings," said Ray Wheeler, a VisualWorks user and consultant in the Technology Infrastructure Group at American Express Travel Related Services in Phoenix. "It's going to be challenging, but I have a high degree of confidence that they can pull it off."

Adrian Bowles, an industry analyst and president of Atelier Research in Westport, Conn., said it is unusual for companies to divulge such plans prior to finalizing a planned merger, but he said it is a good move to reassure customers from both camps.

Although ParcPlace's technology will ultimately dominate, Bowles said he does not consider that to be a negative thing for Digitalink customers, since ParcPlace has recognized the strengths of the Digitalink product and will incorporate them into VanGogh.

Several Digitalink users said they would have preferred to see the merged company base VanGogh on VSE with some VisualWorks enhancements.

Options expand for integrating applications. See page 40.

News

Report raps IS practices at IRS

By Gary H. Antes
WASHINGTON

For the 57th time in eight years, the General Accounting Office has issued a report critical of information systems development activities at the Internal Revenue Service.

In an unusually comprehensive look at the IRS's mammoth Tax Systems Modernization program, the GAO echoed earlier critiques that found poor IS management practices, lack of an integrated systems architecture and immature software development practices.

"The government's investment of what could be more than \$5 billion ... is at serious risk due to remaining pervasive management and technical weaknesses that impede modernization efforts," the GAO said. The congressional audit agency listed 11 areas where improvements are needed and sketched out how they might be made.

As usual, the IRS responded to the GAO findings but responded that it was making progress on all items. The tax agency said it has created a senior "modernization executive" position, developed a comprehensive set of software metrics and taken other actions to address GAO criticisms.

But for some, the remedial steps are too little,



Two weeks ago, the Senate Appropriations Committee approved \$672 million for the tax system modernization next year — \$49 million less than the House appropriation and \$256 million less than the IRS had requested.

Rosa Stillman, chief scientist for computers and communications at the GAO, said a big budget cut might be just the thing to put the IRS out of a business-as-usual mentality. "If that causes a sufficient crisis, they'll rethink what they are doing," she said.

Culture shock

Stillman said the IRS's organizational culture had prevented it from responding adequately to repeated calls to develop an integrated system plus plan and architecture. "They have independent, autonomous islands of power," she said. "They have long operated that way and continue to operate that way." Especially troubling, the GAO said in its report, is the IRS's lack of a comprehensive plan to move substantially to electronic filing.

Its strategy focuses on a small portion of all filers — those who file using third parties, have simple returns and are expecting refunds.

The IRS said it has created a working group to find ways to broaden public access to electronic filing and provide more incentives to file electronically.

A failing situation

The General Accounting Office issued a report that highlights which included the following:

- No comprehensive business strategy to promote electronic filing.
- Incomplete and inconsistent strategic planning.
- Information technology not managed as investment.
- Immature software development capabilities.
- Inadequate system testing.
- Inadequate customer analysis.

Source: General Accounting Office, Washington

FAA speeds plan to replace traffic control systems

By Gary H. Antes
WASHINGTON

The Federal Aviation Administration (FAA) last week responded to a growing number of computer failures with plans to begin installing new mainframes at air route traffic control centers in October 1997, more than a year earlier than it planned.

The FAA said it could no longer wait until new software is written as part of its planned \$4.5 billion overhaul of the nation's air traffic control system. Instead, it will port old software, used to track airplanes between cities, to new IBM ES/9121 mainframes.

FAA officials said there have been 20 failures in the old IBM 9022E mainframes at five control centers in the past four months.

most recently at the Aurora, Ill., Air Route Traffic Control Center [CW, July 31]. When one of these computers goes down, controllers switch to a cumbersome backup system and increase the spacing between flights to ensure safety. Flight delays result.

The backup systems will continue to be used until the new computers are installed, FAA officials insist they are safe. But others are not so sure. Last week, the National Transportation Safety Board said it had launched an investigation into the safety of the present system and its backup and would report its findings early next month.

FAA Administrator David R. Hanson said last week that performance of the computers had deteriorated over the past three years, and the time required to repair

them had increased.

However, in announcing the plan to bring in the new computers early, Hanson said, "While this action is being undertaken as quickly as possible, the current procurement rules mean the first replacement will not occur until early 1997, and that's too long to wait."

An FAA spokesman explained it would also take considerable time to port the old computer code — assembler language, Jovial and other languages — and test it. The software produces the displays that controllers see on their radar screens.

The first new computer will go to the Aurora center, with machines shipping to centers in the Dallas/Fort Worth, Texas; Washington; Cleveland; and New York areas at one-month intervals.

The cost of the five new systems will be approximately \$65 million, the FAA said.

For Issues This Challenging, There's Only One Answer.

The SAS® System.

DATA WAREHOUSING

leverage your investment in existing relational technology. Decision makers can access data from far-flung data repositories, and then transform that data into meaningful information...without dragging down the performance of your operational systems.

EIS

We believe there's more to EIS than fancy front-ends alone. Take advantage of the SAS System's menu-driven, object-oriented, and scalable toolset to build customized enterprise information systems that tap directly into your vast information reservoir...and that make full use of the latest reporting and graphical capabilities.

Knowledge workers need access to relevant data in a timely fashion.

On-Line Analytical Processing with the SAS System is ideal for putting decision makers

in touch with the data they need... and for slicing and dicing that data to identify trends and exceptions.



SAS Institute Inc.
Phone 919-677-8200
Fax 919-677-4444
URL: <http://www.sas.com/>
In Canada: 1-800-363-8397

SAS is a registered trademark of SAS Institute Inc.
Copyright © 1995 by SAS Institute Inc.

SAS Institute is the only software provider of end-to-end data warehousing solutions that enable you to



A black and white photograph of James H. Goodnight, President and CEO of SAS Institute. He is a middle-aged man with glasses, wearing a dark suit and tie, standing in an office environment with bookshelves in the background.

leverage your investment in existing relational technology. Decision makers can access data from far-flung data repositories, and then transform that data into meaningful information...without dragging down the performance of your operational systems.

OLAP

President and CEO James H. Goodnight



To receive a SAS System Executive Summary, give us a call or send us E-mail at cw@sas.com



Think Compaq can beat
HP PCs
for network-ready features and prices?
Prepare to have that idea
shattered.

They say you can't beat Compaq for network-ready features. For starters, our DV series has to be the easiest to set up networks. It's got a range of isolation features, and can integrate brands of PCs not available from us.

And it's the most cost-effective way to get a network.

What about price? At \$1,859² for the DV 575, we think we've got a pretty good deal.

\$1,859²

In addition, HP ranked best overall among desktop personal PC users in the 1991 IDG Power and Associates Customer Satisfaction Study.

So call 1-800-2-HPIN-EXC for more information and the name of your nearest HP dealer. We're more network-ready than anyone.

 **HEWLETT
PACKARD**

For Canada, call 1-800-2HP-2882. *Average U.S. street price for Pentium® processor-based HP Vectra 575 PC (on 23441A). Monitor not included. All HP Vectra PCs come with MS-DOS® 6.2 and MS Windows® for respondents. MS DOS is a U.S. registered trademark and Windows is a U.S. trademark of Microsoft Corporation. Pentium and the Intel Inside logo are U.S.-registered trademarks of Intel Corporation.



Quick! Tell me
about the fastest storage
in open systems.

Please send me more information on how EMC's Symmetrix
3000 can open the doors of my open systems.

Please have a sales representative call me right away to put
Symmetrix 3000 to work immediately.

Name _____

Title _____

Company _____

Address _____

City / State / Zip _____

Telephone _____

EMC[®]
EMC CORPORATION



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO 36 HOPKINTON, MA

POSTAGE WILL BE PAID BY ADDRESSEE

EMC[®]

EMC Corporation
35 Parkwood Drive
Hopkinton, MA 01748-9901





Microprocessor 3.3 GHz processor, HP monitor and keyboard. *Source: 1994 J.D. Power and Associates PC Customer Satisfaction Study™. Study conducted among business users and based on 1,626 user responses. ©1995 Hewlett-Packard Company. PPOA23



News

HP optical jukebox pumps up net capacity

Users hail cost, added capacity, features such as hot-swappable disk drives

By Steve Moore

Buttressing its lead as the optical jukebox market, Hewlett-Packard Co. last week introduced its highest-capacity magneto-optical jukebox to date.

Analysts hailed the added capacity and new features in HP's SureStor Optical 300ST (see box).

"The optical market is relatively slow right now, and that product will help to stimulate demand because of its cost and

features," said Paul Chang, a principal analyst at Dataquest, Inc. in San Jose, Calif.

Hot-swappable magnetic disk drive arrays have proved popular among users, and a key new feature of the SureStor

300ST is its on-line drive-replacement capability — a first in optical jukeboxes.

"The ability to swap drives without shutting down the library is very attractive to users," Chang noted.

Smooth upgrade

Customers also applauded other new features. "I like the fact that it allows you to put more than one jukebox on a SCSI card because then you only need one controller rather than a controller for every jukebox," said James Albert, MIS director for the city of San Francisco's Department of Building Inspections.

In addition, he noted that HP provides a smooth upgrade path.

"We already have a [HP Model 200T] jukebox that we can upgrade to double-density drives and turn our 200T into a 400T. So we would do that first and then go to a 300ST," he explained. "The city plans to have more than a terabyte of online storage by the end of next year, he added."

Overdrive

While HP's previous high-end jukebox had four drives, the SureStor 300ST has six drives. An spokesman for the Palo Alto, Calif., company said that feature increases performance, particularly when many users are on the network. The performance boost "will be a benefit to us in the future as more people start to use our network services," Albert said.

Increasing the number of disks in the jukebox also puts more data "under the hood" and therefore is beneficial for document management applications, an HP spokesman said.

The 300.6-byte SureStor 300ST has six drives and can hold up to 270 1.35-byte 5½-in. disks. Its list price is \$65,000.

As next-generation magneto-optical drives become available, HP plans to provide a conversion kit that allows users to upgrade to those larger drives so that a single jukebox can provide 6000 bytes of storage.

HP is aiming the SureStor 300ST at data warehousing and document and image management applications, particularly in the financial services, retail and publishing industries.

"HP is the leader in jukeboxes for optical technology," says Stan Corker, an analyst at International Data Corp. in San Diego. He noted that while optical drives are slower than magnetic drives, their ruggedness and reliability make them better than magnetic drives for jukebox applications.



What do you call an application that makes phone, fax and e-mail accessible from anywhere?

■ Actually, it's called computer telephony integration. The latest addition to Nortel's portfolio of business applications

Cool.

This elegant integration of your phone system and LAN manages all your communications and messaging from virtually anywhere. ■ Experience the simplicity of virtual fax messaging, customized phone directories, real-time data base screen pops and personal video conferencing. ■ Nortel makes the dream of computer telephony integration an amazing reality. ■ For a free

Nortel business applications demo disc,

you can reach Northern Telecom

at 1-800-6 NORTEL (dept

109) or on the Internet at

<http://www.nortel.com>. ■

NORTEL

A World of Networks

Enterprise Networks • Wireless Networks • Broadband Networks
Switching Networks • Network Applications

© 1995 Northern Telecom. Nortel is a trademark of Northern Telecom.





INTRODUCING THE FIRST NOTEBOOK TO MAXIMIZE THE PENTIUM PROCESSOR'S FULL POTENTIAL.

When the rush was on to introduce a notebook with a Pentium® processor, Texas Instruments decided to do what others thought couldn't be done.

We created a notebook that maximizes Pentium performance by integrating full PCI bus architecture in our *Texas Instruments TravelMate™ 5000*.

And for flexible connectivity, we designed a way to allow external access from the PCI bus to the latest peripherals.

It was a challenge we addressed for two simple reasons: to give users true desktop Pentium performance for faster running software and expansion capabilities

for long-term investment protection.

So now you have a notebook with smoother full-motion video and enhanced 3-D graphics. In addition, we designed the TravelMate 5000 to take advantage of the "plug and play" capabilities of Windows 95® when it becomes available.

But our engineers didn't stop there. We added a second lithium ion battery without sacrificing size, weight or eliminating a floppy drive.

The *TI TravelMate 5000*. For more on what others thought you couldn't do with a notebook, call 1-800-TI-TEXAS (e-mail: ti@msg.ti.com or on the Internet: <http://www.ti.com>).

75 MHz Pentium processor with PCI Bus

10.4" Active Matrix or 10.5" Dual Scan displays

2MB Video memory

8MB RAM, expandable to 32MB

8.10 million bytes (~772MB) or 584 million bytes (~500MB) Hard Disk Drives*

Multimedia package: Built-in 16-bit sound, internal speaker and dual mode microphone

Two Lithium ion battery packs

Serial infrared port for wireless connectivity

EXTENDING YOUR REACH™



Reserve your new Texas Instruments TravelMate notebook today. Contact your local TI office for details. Batteries and options are offered by a new year limited warranty. TravelMate and "Extending Your Reach" are trademarks of Texas Instruments. Visante II is a registered trademark of Microsoft Corporation. The Intel Inside Logo and Pentium are registered trademarks of Intel Corporation. *Depending on model. © 1995 TI.

**TEXAS
INSTRUMENTS**



*A few unprovoked remarks about UNIFACE application-building
strongware from Reggy "Chainsaw" Morgan, social secretary
of Client/Server Angels International, West Covina Chapter*





COMPUWARE.
Uncomplicating Your Life

"Anybody who don't know
that UNIFACE strongware is the real stuff
or real systems don't know diddly,
if you get my drift. It kicks butt outta
all that wimpy stuff you read about
and it's built for the long haul. Let
me put it another way. If any of
you heavy breathers spent a little time
word about UNIFACE yet let me urge
you to call 800 365-3608 or I might
have to introduce you to my
big brother Waldo.
He's a real salesman,
that guy."

UNIFACE

WHAT THE BIG GUYS USE



SmartSuite 4.0 gambles on 16-bit nostalgia

By Cheryl Gerber

Grasping the tail end of opportunity in its installed base, Lotus Development Corp. recently introduced SmartSuite 4.0 for Windows 3.1, the final revision before the suite's Windows 95 version.

Some compelling new Notes-like fea-

tures in WordPro, SmartSuite's word processing component, may entice users into making the upgrade despite their anticipation of the upcoming version based on Microsoft Corp.'s Windows 95. But users yawned at other functionality added to the suite.

First Union Corp. in Charlotte, N.C., is

weighing whether to make the upgrade to SmartSuite 4.0 or wait until the Windows 95 version emerges this fall.

"We would like not to hang on to another 16-bit application, but there are some compelling team computing features in this version of WordPro that are making us consider it anyway," said Less Kassing,

now a First Union technology research consultant who is also project manager for the bank's Windows 95 rollout.

She was referring to features such as Versioning, TeamReview, MultiEditor, Revision Making and TeamConsolidate. All of these features let users collaborate on shared documents. Also added to WordPro are automatic spell checking and a thorough implementation of Lotus

Script 3.0 for enhanced programmability.

Two other SmartSuite applications, Organizer 2.1 and ScreenCam 2.0, also provide team collaboration tools. Organizer 2.1 offers LAN-based scheduling and calendar sharing.

ScreenCam 2.0, the tool for creating PC-based training movies or presentations, now offers captioning, sound compression, editing and Notes/FX integration. For the Lotus installed base who needs compatible versions to work smoothly with one another, the collaborative features in WordPro have made the upgrade a given.

"Even for a short period of time, it'll be worth the return on investment for us to upgrade in order to communicate smoothly with our business associates who also use Lotus software," said Dan Tyre, president of Ali, Inc. in Needham, Mass., a professional services firm. "The team computing features in WordPro are a tremendous added benefit," he added.

Another motivation for Tyre was to defuse the cost of restraining staff on Windows 95 or another desktop software program.

He said he also sees the WordPro version as a way to get staff ready for Notes. First Union would like to leverage its installed software before making the huge investment required for the move to Windows 95.

Though First Union plans to use 32-bit applications when it moves to Windows 95, the bank will also use 16-bit applications. "Some of the bank's divisions will be working in a 16-bit vertical applications world for two to three more years," Kassing said.

The Cambridge, Mass.-based Lotus has priced SmartSuite 4.0 at \$199 for a shrink-wrapped upgrade and \$399 for a shrink-wrapped SmartSuite.

Lotus Organizer 2.0 shows improvement over earlier version. See page 40.

For fast, productive and fully integrated design and development, Powersoft's PowerBuilder® Enterprise and S-Designer for PowerBuilder are an unbeatable team. PowerBuilder's powerful technology, open architecture and scalable environment have made it the proven choice in application development tools. S-Designer's strength and flexibility have made it the leading database design tool. And now, with S-Designer for PowerBuilder, a version designed specifically for

fully integrated design and development with the best design tools from Powersoft.

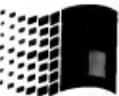
PowerBuilder and S-Designer. The faster way to build better applications, the better way to build faster applications.

attributes in a data model and export it to PowerBuilder for enhanced consistency. Or, from S-Designer, you can generate, in a point and click



fashion, pre-built SQL statements or query objects for PowerBuilder applications, increasing efficiencies in data access. PowerBuilder Enterprise and S-Designer for PowerBuilder. Fast and productive. Tightly integrated. An unbeatable combination.

Available together at a reduced price for a limited



Windows 3.1

Software release

Lotus also plans to ship this quarter NotesSuite 2.0, which comprises SmartSuite 4.0, the latest version of Notes, and NotesSoft Applications Connection 2.0.



Powersoft Corporation, (800) 287-1520, <http://www.powersoft.com>; Powersoft Europe Ltd., United Kingdom, +44 1994 555555; American Powersoft Corporation Pte Ltd., Singapore, +65 338-0216. All trademarks and registered trademarks are property of their respective owners.

First you opened your computer system. Now open the throttle.

One storage

You've invested millions in open systems. From high-performance servers to the latest in application software. But what's the point if your data is slowed to a crawl by a bottleneck of a storage system?

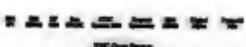
Enter Symmetrix® 3000 ICDA®. Storage that pushes vital applications like OLTP, decision support and data warehousing to their mind-boggling limits.

Put simply, Symmetrix 3000 is in a class by itself. From one central location, it boosts data throughput, reduces response time, offloads CPU processing and lets you access

critical information faster than you've ever dreamed.

Plus, Symmetrix 3000 gives

over a terabyte of information with a single Symmetrix 3000.



What's more, it delivers the high availability required by mission-critical applications and uses the same Integrated Cached Disk Array (ICDA) technology proven in thousands of mainframe sites around the world.



Introducing the world's fastest open storage. Symmetrix 3000.

you unprecedented connectivity. So whether you're connecting to one server or to many, you can manage

To learn more about the only storage system in the world that truly opens your open systems, and how it can make your business more competitive, please call us at 1-800-424-EMC2 ext. 403.

OPEN SYSTEMS ARE MAXIMIZED BY A FACTOR OF **EMC²**
THE STORAGE ARCHITECTS

EMC, Symmetrix, ICDA, and THE STORAGE ARCHITECTS are registered trademarks of EMC Corporation. Other trademarks are the property of their respective owners. ©1995 EMC Corporation. All rights reserved.



The original premise was simple:
make a powerful, yet affordable,
computer that doesn't come
Introducing the new Compaq ProLinea with all the headaches
normally associated with the word "value." And in
creating the latest Compaq ProLinea, we built on that
premise—by taking the original apart. We examined it
from the inside out, looking for ways to improve it.
Looking to see what new technologies we could add.

THE LATEST PROLINEA HAS AN

IMPRESSIVE SAVE FEATURE: IT'LL SAVE YOU MONEY, SAVE YOU TIME, AND SAVE YOUR SANITY.

In the end, we came up with more than a few improvements. Making ProLinea even harder to distinguish from more expensive machines. The fastest processors. Easy upgradability. Simplified maintenance. Features that make it easy to live with on the day you install it, as well as for years to come.

It all raises ProLinea to a completely new level.
(Of course you'll still find the price within reach.)

And that should certainly put your mind at ease.

COMPAQ



YOU'D SMILE TOO IF YOU JUST CUT YOUR NETWORK PRINTER COSTS IN HALF.

KYOCERA SAYS IT'S STORY #558

BACKGROUND Switched from HP to Kyocera Recently purchased 15+ Kyocera cartridge-free printers

KYOCERA SAVINGS More than \$100,000 in the first year.



INTRODUCING THE NEXT GENERATION OF "CARTRIDGE-FREE" PRINTERS FROM KYOCERA.

They're incredibly fast. Advanced. And reliable. So how come they cost 50% less to operate than HP® and Lexmark™ printers?

Because the largest printer expense isn't the cost of the printer — but the cost of all those expensive toner cartridges you have to buy.

Kyocera® printers are the first — and only — laser printers with long-life imaging components, so you never have to replace expensive cartridges.

"CARTRIDGE-FREE" TECHNOLOGY REDUCES PRINTING COSTS BY 50%.

Over time, the savings can be enormous. One printer alone could save you \$3,700* the

first year. Depending on your network, your savings could be hundreds of thousands, even millions of dollars.

That's not all you'll save with Kyocera. Our modular paper-handling options give you the flexibility to upgrade over time, as you need it. You'll even save space with our extra small footprint. So why pay more for the same speed, performance and reliability?

CALL 1-800-232-6797 FOR A FREE DEMO. "HOW TO CUT YOUR PRINTER COSTS." ASK FOR DEPT. 1003.

Every Kyocera printer is backed by a 5 billion-dollar company that's world-renowned for service, support and leading-edge technology. Call today. And soon you'll be smiling, too.



Kyocera offers a broad range of "cartridge-free" printers:

- 300 and 600 dpi
- 4, 10 and 15 ppm
- Color and B/C
- Multi-grammed support
- Modular paper-handling
- Duplexing
- Energy Star compliant
- Small footprint



Ecosts

*Based on duty cycle of 20,000 pages per month at list price. After 4 months, delivery by FedEx ground ship. © 1995 Kyocera Electronics Inc. Kyocera is a registered trademark of Kyocera Corporation. Energy Star does not represent endorsement of any product or service. All other product or service names mentioned herein may be trademarks or registered trademarks of their respective owners.

 **KYOCERA**

Banks grapple with user links

By Thomas Hoffmann and Ellis Booker

Ask bankers what the Top 3 electronic banking requirements are and they will tell you this: security, security and more security.

But behind the scenes, information systems folks are quietly wrestling with the additional tasks of connecting their banks' disparate legacy systems to front-end customer interfaces, as Internet and PC-based pathways to customer account information begin to break open.

"Most banks' legacy systems were not designed with the thought of letting outside customers in," said Bruce Valentine, a first vice president at Detroit-based Comerica, Inc.

It can be easier to unify disjointed platforms than to gain cooperation among di-

vision executives who, after years of protectionist policy, are being asked to share data with the rest of the bank, according to Kurt Cavano. Cavano is vice president of the New York-based wholesale banking unit at American Management Systems (AMS) in Fairfax, Va.

Political issues aside, connectivity issues are paramount. Many banks have tried linking their customers to their legacy systems through a gateway server using point-to-point connections over IBM SNA networks. But that approach usually provides customers with only raw data and a limited view of their account information.

Other banks, such as The Chase Manhattan Bank NA, have begun installing middleware packages such as Early, Cloud & Co.'s Message-Driven processor software to link disparate legacy checking, mortgage and other retail systems to one another and to front-end servers. The servers can then connect the bank with its on-line customers. This strategy was designed to give customers a more complete view of their account histories.

Differing needs

Nevertheless, each bank seems to be taking a different route toward resolving its on-line connectivity and communications issues. Chemical Banking Corp. customers who use Excel, the bank's homegrown PC banking package, can dial in to the bank's systems and access legacy and client/server-based account information through a Tandem Computers, Inc. gateway server. The Tandem server connects to the disparate back-end systems over an SNA network.

But because most customer account information has been shifted onto client/server systems throughout

Chemical's branches, the bank plans to replace its outdated IBM SNA network with an as-yet-undeveloped gateway system next year. "There's diminishing demand [for cus-

tomers] to go to the mainframe [for account information]," said Carl Morales, managing director for Chemical's consumer banking systems and operations in New York.

Comerica will link the Compaq server with its legacy systems via the gateway application through a variety of networked workstations, including LU6.2, TCP/IP and IPX/SPX. Banks

The bank is testing a wire transfer service with a few customers and plans to begin piloting six on-line balance reporting systems in September.

—Thomas Hoffmann

The corporate side

Electronic banking isn't just for consumers.

Detroit-based Comerica last month began rolling out the first pieces of the Commerce Gateway, an electronic interface designed to allow corporate customers to access their account information and pay bills.

Through a partnership with AMS in Fairfax, Va., Comerica is creating a browser-based, Java-enabled and C++-generated gateway application that will link customers in Comerica's business units, according to Bruce Valentine, Comerica's first vice president of corporate product development. Comerica's corporate customers have been able to download data through a rudimentary predecessor system called Comerica's Intranet.

To facilitate account access through Commerce Gateway, AMS programmers have written a gateway application in C and C++ that translates and forwards customer information between its Compaq Computer Corp. ProLink 4000 server firewall and the bank's back-office systems.

Comerica will link the Compaq server with its legacy systems via the gateway application through a variety of networked workstations, including LU6.2, TCP/IP and IPX/SPX.

The bank is testing a wire transfer service with a few customers and plans to begin piloting six on-line balance reporting systems in September.

—Thomas Hoffmann

First person

When I started at Wells Fargo Bank, I was one of the first to be assigned to the customer account access team to work over the Internet. I wanted to try it out.

Anytime one visits the bank's World Wide Web page at <http://www.wellsfargo.com>, but some options of the well-known site are off-limits without special access privileges.

To see current balances in my savings or checking account, for example, I first had to call a teller-free number to create a secret five- to eight-digit password.

Setting up a password was a 25-minute hoop-jumping process to ensure I was who I said I was.

After verifying my Social Security number, address and bank card number, I answered questions such as "What is the last deposit made to this account?" and "How much was your last ATM withdrawal?"

I rifled through my wallet for recent receipts, wondering whether the

Web password strength would be good enough.

The option then switched to transfer me to a "password generator" to select a password that I could later go without fear of forgetting.

The checking and savings information I wanted to see over the Web had already joined accounts with my home-based Down Town Wells Fargo local branch office for me.

And just what security does the bank display anyway?

We can now access information without supplying Social Security number and the right password, the card and the right account number. The new Web-based interface also encrypts the data and provides other security measures, she said.

Plus, customers can change passwords as often as they like.

After choosing and confirming a password, I can immediately view and drill down into my accounts. There is no one-hour waiting period, like when I signed up for The San Jose Mercury News on-line. —Ellen S. Hatch



using Digital Equipment Corp.'s object request broker tools, with C++ as the programming language, said Barry Lynn, executive vice president of the customer information group at the San Francisco-based bank.

The plan is to connect customers to every possible relationship they might have with the bank, according to Lynn. "When a customer comes into Wells Fargo electronically, he wants to be treated like a customer and not like a bunch of different accounts," Lynn said.

Of course, many banks continue to proceed cautiously into the electronic jun-

gle. Banc One

Services Corp., the technology and operations arm of Banc One Corp. in Columbus, Ohio, began re-engineering its customer information system more than five years ago with an eye toward

an-line networks and real-time processing of data under a joint development project with Electronic Data Systems Corp.

But like many of its brethren, Banc One is taking a careful look at the Internet and its demographics before committing sizable development resources to create retail banking services through this channel, according to Robert Barrett, executive vice president and chief technology officer at Banc One Services.

Although it has not begun handling cross-Internet transactions itself, Banc

One has not been sitting still. In late June, it launched a project with Open Market, Inc. in Cambridge, Mass., and RoverCom, Inc. in Bedford, Mass., a leading service provider to libraries and research institutions, to deliver a procurement system that streamlines the relationship between libraries and publishers.

Web crawlers have a new way to analyze 'net traffic. See page 55.

Lock and key

Digital encryption is only one part of a secure electronic environment in which confidential transactions can take place. Other elements include the following:

- Authentication — Certifying individual or organization identity.
- Authorization — Ensuring access rules over data are verified.
- Confidentiality — Maintaining the privacy of the exchanged transmission.
- Integrity — Demonstrating that a transmission arrives in exactly the same form in which it was sent.

A Microsoft publication describes the four components of the secure system, e.g. an electronic commerce system.

Oracle's Larry Ellison on AI&T Enterprise Servers.

Your business is mission-critical. That's why it's critical that you run the world's best database and business applications—Oracle's—on a server with unsurpassed levels of reliability—AI&T's.[®]

Larry Ellison, Chairman and CEO, Oracle.



COMPUTERWORLD

Professional Courtesy Voucher

Yes, I want to receive my own copy of **COMPUTERWORLD** each week. I accept your offer of \$39.95* per year - a savings of \$8.05 off the basic subscription price.

First Name _____ Last Name _____
Title _____
Company _____
Address _____
City _____ State _____ Zip _____

Address shown: Home Business New Renew Basic Rate: \$48 per year
*U.S. Only. Canada \$95, Mexico, Central/South America \$150, Europe \$250, all other countries \$265.
Foreign orders must be prepaid in U.S. dollars.
For faster service, fax your order to (508) 626-2705

SAVINGS STATEMENT

Regular Subscription Price

\$48.00

Your Special Rate

\$39.95

Your Savings

\$8.05

E445-2

COMPUTERWORLD

Professional Courtesy Voucher

Yes, I want to receive my own copy of **COMPUTERWORLD** each week. I accept your offer of \$39.95* per year - a savings of \$8.05 off the basic subscription price.

First Name _____ Last Name _____
Title _____
Company _____
Address _____
City _____ State _____ Zip _____

Address shown: Home Business New Renew Basic Rate: \$48 per year
*U.S. Only. Canada \$95, Mexico, Central/South America \$150, Europe \$250, all other countries \$265.
Foreign orders must be prepaid in U.S. dollars.
For faster service, fax your order to (508) 626-2705

SAVINGS STATEMENT

Regular Subscription Price

\$48.00

Your Special Rate

\$39.95

Your Savings

\$8.05

E445-2

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 1131 FRAMINGHAM, MA

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTERWORLD

CIRCULATION DEPT
375 COCHITIUTE ROAD
FRAMINGHAM MA 01701-9494

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 1131 FRAMINGHAM, MA

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTERWORLD

CIRCULATION DEPT
375 COCHITIUTE ROAD
FRAMINGHAM MA 01701-9494

At AT&T, we're committed to making sure that all the applications you need are optimized for our servers. That's why we've developed an alliance with Oracle.[®]

[REDACTED] Businesses often look to Oracle when it comes to building and deploying powerful, scalable, next-generation databases. When you run Oracle's mission-critical apps on an AT&T Enterprise Server, you can be confident that they'll run flawlessly right from the get-go. Most importantly, you can be sure that they'll run continuously, because no line of servers has a higher level of redundancy than AT&T's. So you never have to worry about losing revenue or data due to down-time.

To get more info about AT&T Servers, call 1 800 447-1124, ext. 1132.

ORACLE
Enabling the Information Age

**GET IT
MOVE USE**
Bridging computers and communication
Together to help you get more and
use your resources

 **AT&T**
Global Information
Solutions

Computer Industry

Antitrust settlement

Legent VSE users call accord weak

By Mitch Betts
and Thomas Hoffman

A so-called mild antitrust settlement that allows Computer Associates International, Inc., to gobble up Legent Corp. has left some mainframe software customers and competitors grumbling that it doesn't go far enough.

The agreement with the Department of Justice requires CA to license, but not divest, five Legent VSE products to one or more vendors to preserve some competition in that market niche [CW, July 31]. Legent VSE customers, meanwhile, can stay with CA/Legent or switch to the new licensees or li-

censees, depending on which vendors are selected and ratified by the Justice Department to license the software.

"It's better than CA having a pure monopoly in the VSE world," said Larry Moore, president of the Tennessee VSE Users Group and a senior systems programmer at Hamilton County, Tenn., data processing department. But Moore and several other users said they would have preferred a full-blended divestiture.

Stigle Sotin, a Washington attorney who represents CA/Legent VSE competitor Sterling Software, Inc. in Dallas, also wanted divestiture. "CA has an enormous concentration of market power in VSE products, and the licensing scheme is inadequate," he said.

But Lawrence R. Fullerton, an antitrust official at the Justice Department, defended the settlement at a press briefing last week in Washington. "We're confident that this fix will work. If it doesn't, the court could order a fuller division of assets," he said.

Justice ruling

CA had refused to sell the disputed products, so the Justice Department took the middle ground of licensing and got veto power over the licensee. Fullerton said the government prefers that the whole set of products go to a single licensee because customers like vendors with a full line of products.

The settlement covers Legent's Epio/VSE for tape and disk management, FAQP/PCS for VSE job scheduling, Alert/VSE and Alert/CICS security tools and FAQS/ASU for VSE automated operations.

Potential candidates for VSE licensure include Sterling, Landmark Systems Corp. in Vienna, Va., and Macro, Inc. in Parsippany, N.J., according to Paul Marano, research manager for enterprise systems at Gartner, an International Data Corp. market research firm in Poughkeepsie, Mass.

"I can't go into details about this, but we will most likely be receiving a packet from CA," regarding the possibility of cross-licensing the Legent VSE products, said Charles Warshaf, president and chief executive officer of Macro.



No monopoly

PHASE 1:
CA is required to hire and pay for an investment banker.

The Macro Group — a coalition of seven companies that will bid to receive and evaluate bids from other vendors to license Legent products. The results are subject to Justice Department approval.

PHASE 2:
If the investment banker can't find a viable bidder, a court-appointed trustee will try to do so.

PHASE 3:
If the trustee can't find a viable bidder, U.S. District Court Judge Thomas Penfield Jackson will have wide discretion to come up with a remedy. That may include requiring CA to divest the products.

Source: Department of Justice, Washington

The U.S. House of Representatives' proposed budget for federal non-defense research and development spending

	Fiscal 1995	Fiscal 2000*	Percent** change
Health and Human Services	\$11.7B	\$8.8B	-25%
NASA	\$9.9B	\$6.9B	-30%
Department of Energy	\$4.8B	\$2.8B	-41%
National Science Foundation	\$4.5B	\$2.8B	-37%
Department of Agriculture	\$1.5B	\$1.8B	+35%
Department of Commerce	\$2.3B	\$4.4B	+95%
Other R&D	\$3.4B	\$1.6B	-54%
Total non-defense R&D	\$51.1B	\$27.5B	-48%

*Projected; adjusted for inflation. **Approximation due to rounding

Source: American Association for the Advancement of Science, Washington

Republican ax-wielding blunts high-tech support

By Gary H. Anthes

WASHINGTON

When Republican lawmakers swept into power last November, many industry officials cheered. But after nine months of unremitting attacks on federal technology programs, that enthusiasm has waned.

Putting a damper on things are actions taken in recent weeks by the U.S. House of Representatives — actions that are potentially reversible when the Senate and House meet later this year. House Republicans have aimed the budget ax at several high-tech initiatives as part of an effort to support a Republican pledge to eliminate the budget deficit in seven years. They have so far done the following:

- Eliminated all funding for the Department of Commerce's \$341 million Advanced Technology Program (ATP), which provides grants to companies developing basic new technologies.
- Cut \$60 million for Sematech, the semiconductor industry's research consortium.
- Slashed major research programs in global climate change at the Environmental Protection Agency and the National Oceanic and Atmospheric Administration.
- Eliminated the program for transferring technology developed at the National Laboratories to the private sector.
- Agreed with Senate budget negotiators to kill the Office of Technology Assessment, Congress' highly regarded, technology think tank.

"A lot of people in the industry are unhappy with their targeting of some of the technology programs," said Michael E. Kerizius, chief executive officer of Powersoft Corp., a unit of Sybase Inc. in Concord, Mass. "The Clinton administration has been the most technology-friendly administration we've had."

Michael Maiselbach, director of government af-

fairs at Intel Corp., shed no tears for the ATP, saying the government has no business using taxpayer dollars to "pick winners and losers" in the marketplace.

However, Maiselbach said it is appropriate to fund programs such as Sematech that any company may join and that develop "prescriptive, generic" technologies.

Ken Kay, executive director of the Computer Systems Policy Project (CSP) in Washington, said the CEOs of the 15 major computer companies in the CSP didn't believe that government research programs should be immune to budget cuts.

But he said companies are worried that university programs are being unfairly targeted. "Our chief technology officers, in particular, feel that that is the last place that cuts should be made," he said.

Cuts too deep

On the other side of the political aisle, allies of government technology programs anguished last week over cuts to programs they have championed for years. "What bothers us most is whereas we were once No. 1, today the U.S. ranks 29th in the world in terms of the portion of the budget going to civilian R&D," said Rep. George E. Brown Jr. (D-Calif.), who was chairman of the House Science Committee until last November.

Brown said he hasn't seen an organized effort by the industry to lobby for programs such as the ATP. "The community has got to get its act together," he said. "They are not weighing in to complain about cuts in R&D programs."

Maiselbach said the pain of budget cuts will have been worth it if the Republicans prevail with a plan that really eliminates the deficit in seven years. "If they win the battle this fall, I think they are on a trajectory to really help the stock market and the investment climate," he said. "But if they fiddle, and it's business as usual on the budget, then all of this other stuff is not important."



Rep. George E. Brown Jr. (D-Calif.) says too many cuts have been made to technology programs

Driving the Transition to a Flexible IT Enterprise

*A Guide for Business
and IT Managers*

Overview by the



MLTVA Group, Inc.

Special Advertising Section



A wing and no prayer.

To keep up with the accelerating pace of change, organizations are being forced to reshape themselves. But unless improvements impact all areas of the enterprise, the race may be over before it starts. So instead of focusing on just one

part of an organization, Andersen Consulting can help you transform the whole. And rather than merely recommending how the components should fit together, we'll work with you to help make sure that they do. Because these days, organizations

that don't transform are likely to end up in the soup.

ANDERSEN CONSULTING
ARTHUR ANDERSEN & CO. S.C.

The Transition to a Flexible IT Architecture

Beyond the Limitations of Legacy Systems

As information technology evolves, virtually every organization is feeling pain from its existing IT resources. Application backlogs are growing; IT operating costs continue to climb. Data on man-

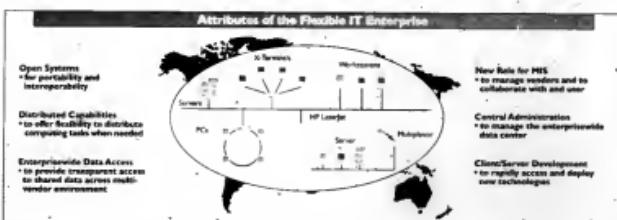
Realizing that proprietary architectures cannot sustain a company's competitive edge, corporations have begun to search for more flexible and responsive IT environments. The result is that open systems and client/server architectures have emerged at the founda-

the transition involves risk. How can an MIS manager ensure that systems, PCs, peripherals, interfaces and development tools will work well together once deployed in a client/server model? How can IT personnel be trained for a new skill set, given that their roles and responsibilities may change during the transition? And how can an organization transform a rigid pre-defined IT architecture that imposes limitations on business processes to a flexible, adaptable IT architecture that supports true re-engineering of business processes?

More Than Technology Addressing this challenge requires a new view of IT — one that includes not only technology solutions, but also the solutions to the equally critical people and process issues that are part of this transition.

Experienced Transition Advisors

To manage such complexity and minimize the risks requires a comprehensive understanding of the significant



frames and proprietary midrange systems is often inaccessible. New product lines — being introduced at ever increasing rates — must be supported. And organizations are continually being challenged to do more with less.

Introducing a more flexible IT architecture into existing legacy environments is now the primary challenge of many IT managers.

Organizations are recognizing the need to transition to client/server, but

changes required in processes, people and technologies. Hewlett-Packard Company has developed this knowledge first-hand.

H-P ranked 22nd in the Fortune 500, has helped thousands of companies

DRIVING THE TRANSITION TO A FLEXIBLE IT ENTERPRISE

worldwide transition from proprietary mainframe and midrange platforms to open systems-based client/server architectures.

HP's Mainframe Elimination HP understands the issues involved because it has been down a similar path itself. The company is driving its own internal mainframe elimination project. For over 30 years the company had large legacy applications deeply entwined within an IBM mainframe architecture.

By 1992 HP had eliminated all but two of its production mainframe data centers. And HP anticipates that by the first quarter of 1996, it will be the largest company in the world to be running its business without traditional mainframes.

The business and technical issues that HP faced in migrating from its own mainframes to more cost-effective, flexible open-systems platforms are the same ones that many other companies are facing.

To address these issues, HP has

Transition Technologies

HP has built a technology foundation supporting the transition from proprietary architectures to open client/server. This foundation begins with the superior performance and scalability of the HP 9000 server configurations appropriate for departments or workgroups to data centers.

HP also supports the key applications, multivendor systems, networks and peripherals used in legacy environments. For managing across the IT enterprise, HP developed the industry's leading technology framework, HP OpenView. HP OpenView provides the comprehensive set of management tools, including those offered by the industry's leading software vendors.

Transition Services

Planning, project management and implementation are key elements of a successful IT transition. Experienced consultants can be enormously useful in guiding an organization through an already proven process that addresses

technology leads organizations through a process to identify business problems and requirements, establish clear goals, evaluate technology options, and finally choose and implement a solution. HP's experience is evident in the kind of questions the consultants know to ask, in the resulting analysis which bench-

Hewlett-Packard is driving its own internal mainframe elimination program. By 1992 HP had eliminated all but two production mainframe data centers. And by the first quarter of 1996, HP expects to be the largest company in the world running its business without traditional mainframes.

marks an organization against HP's experience with other companies, and in HP's understanding of the transition process and its recommendations for mitigating transition risk.

Education-To transition people's skills, HP offers an educational assessment service to help define training needs at the outset of the transition and to develop a training plan that takes into account the current proprietary-based skills, providing a bridge from the old to the new.

Software Solutions to Match Different Strategies

Moving Existing Applications HP's relationships with software providers are a key element of transition success. Some organizations that have offloaded their host-based systems have chosen to convert or transfer their existing applications to Unix. HP offers a full range of conversion tools and traditional mainframe applications to aid in the transition without replacing the applications or existing user interfaces.

Implementing Re-engineered Applica-



developed a complete portfolio of services and products to enable a smooth transition for the processes, people and technologies that comprise IT.

each stage of change. HP has provided the guidance for thousands of companies worldwide.

HP's Transition Services Methodology

tions. Many other organizations, wanting new application functionality, have chosen to replace outdated applications with new and improved packaged software developed on Unix systems. SAP, for one, has been very successful with its R/3 business applications written specifically for open systems client/server architectures, and HP is the leading platform for R/3.

Developing Customized Applications
Another offload strategy is to build highly customized, mission-critical applications in-house by using one of the new advanced development tools. Industry analysts predict that the demand for enterprise-based client/server development tools will explode over the next three years. Antares Alliance Group's ObjectStar enables portions of existing complex code to be redeveloped for client/server and Dynatix's 4GL products bring new rapid application development capabilities to this emerging market segment. Leaders in the marketplace, for traditional client/server development tools, such as Texas Instruments with Composer by IF and Seer Technologies with HPS, also are expanding into the market for enterprise-based development solutions.

Summary

Effective IT management today demands a flexible, open environment that can guarantee the availability of mission-critical applications, databases, systems and networks. Organizations seeking to remain competitive are driving the transition from proprietary, centralized, often mainframe-based architectures to distributed client/server.

Yet that transition carries with it inherent complexities and risks. Based



The organization where Hewlett-Packard is working alongside both the IT and business unit managers to ensure a smooth transition is Chevron Corp. HP is helping Chevron implement a worldwide rollout of SAP's R/3 financial applications. HP is providing systems for all three tiers of SAP's R/3 solution, and open systems training, consulting and support services.

HP's Professional Services Organization (PSO) has been working with Chevron to deploy HP OpenView as Chevron's enterprise network and systems management platform. Chevron's legacy environment, as well as the new SAP application on HP open systems, can both be managed centrally using HP Operations Center, a key component of HP OpenView. This is possible because HP OpenView is integrated with Paradigm/NP from Computer Associates/Legent Corp., as well as SAP's Computing Center Management System.

Success in Re-Engineering Business Processes

Another real-world example involved the supporting of re-engineered business processes. In this instance, HP's PSO assisted Tokio Marine & Fire Insurance Co. Ltd. of Tokyo in changing its IT infrastructure. The reason for the change was that Tokio Marine wanted to support more efficient processing of its property and casualty insurance data. With processing volume at more than 700,000 transactions per day, the typical 10-second inquiry response time of the mainframe-based system was too slow.

HP's consultants worked with the company to design, manage and implement a project to install an open, standards-based communication backbone to handle the requirements of the "re-engineered," large-scale online transaction system.

The results of this implementation are a significant improvement in response time (greater than 30%), a system that is dramatically easier to learn and use, and, most importantly, a communication backbone that will enable Tokio Marine to continue its migration from mainframes to more economical servers in the future.

on the experience of thousands of customers worldwide who have successfully made the transition, its own mainframe offloading project, and a comprehensive portfolio of products and services, HP is in the best position

to help reduce the complexities and risks involved in migrating.

By focusing not just on technology, but also on the IT processes and people skills, HP is prepared to guide organizations to a flexible IT enterprise. ■

IT Management Must Drive the Transition

Reflecting a more competitive market, enterprises are redefining themselves, changing their infrastructures to focus on providing top-quality service to customers. Although nearly every aspect of a business has been affected, the most profound impact is on the IT organization, because this change is occurring as IT evolves from a hierarchical, mainframe-centric environment to an enterprise-centric one.

IT is also evolving from an independent "internal monopoly" to a service organization competing for end-user business. The objective of the newly defined IT is to partner with end users to focus on the enterprise's customers; its overall responsibility is to transform technological complexity into strategic business advantage and facilitate change.

To manage this transition requires a mind-set and cultural change from three constituencies: end-user departments, IT and senior management. Each group must be educated about its new role. End users are typically the most amenable to change, IT the most resistant, because as the most entrenched, it stands to lose the most power. The most sensitive challenge is senior management, which now must involve itself more in IT direction.

IT should focus on six areas:

- 1. Marketing IT services and value.** As IT becomes more service-oriented, it must proactively market its services to end users, assessing its effectiveness via ongoing user feedback.

- 2. Integrating IT into the business units.** The goal is to create an IT/end-

user team focusing on better servicing customers. Programs to improve interpersonal skills will be augmented by hiring non-traditional IT personnel with strong communications skills, who will be charged with identifying opportunities and ensuring user satisfaction.

- 3. Creating, managing and sustaining an environment of change.** Effecting change in today's IT organization underlies every major IT initiative. Complications arising from managing change across increasingly broader geographical boundaries, maintaining service levels, and coordinating enterprise-wide IT changes (when business units are in different growth stages) are key challenges. IT must handle those who resist change in part by creating programs that reward behavioral changes.

- 4. Reorganizing IT to the new organization paradigm.** Users' increased power necessitates an IT governing body comprised of heads of business units. This group is responsible for enterprise-wide IT strategy, endorsing policies, guidelines and standards, and evaluating the risk/reward of IT initiatives. Once this organization is functioning, enterprises evolve to an "insourcing" paradigm, where IT competes for departmental business with outside vendors and service providers.

- 5. Managing enterprise expectations of IT through ongoing education.** One of IT's responsibilities is educating its customers/end users so they have realistic expectations of IT, can assist in exploring new technologies, and can better resist the misinformation promulgated by self-serving vendors and overly simplistic media articles.

- 6. Re-engineering IT's human resource management.** To make the transition to the new enterprise, IT will need to attract and motivate a new breed of IT professionals technically astute (in Unix/Windows systems computing, client/server architectures and networking); able to manage projects in cross-functional environments adept in communicating with customers, employees, and senior management; and able to apply changing technology rapidly to business needs.

Bottom Line

Effective IT management in the 1990s requires recognizing the new order and IT's changing role — its scope is now the enterprise; its focus is bringing value to the business and architecting change. The objective is IT/business integration, with IT measured on its role in improving business processes; customer service; and, ultimately, profits.*



Marc Butlen is chairman and co-founder of META Group and executive director of the META Executive Council. Mr. Butlen is an expert on IBM, the mainframe marketplace, and the IT challenges facing large enterprises. He has spent 27 years of experience in the industry and has lectured extensively in the U.S., Canada, and Europe. Prior to co-founding META Group in January 1989, Mr. Butlen spent 15 years with IBM, where he held various marketing, development, and corporate positions, and six years in the market analysis and assessment industry.



Once you venture

into client/server, there's no turning back. So you



You already know where you want to go with client/server. But do you know exactly how you're going to get there?

Fortunately, there are plenty of companies that can tell you.

- Such as the multi-billion dollar bank, handling as many as 120,000 calls a day, that completely reconfigured its customer service operations.

The giant retailing conglomerate that totally reengineered its customer database infra-

structure for 500 stores. The information systems developer that integrated a central government's wage and tax system into its accounting and purchasing systems.

- All had ambitious business plans, a large number of end users, and an urgent need to support rapidly-changing business processes.
- All chose Seer•HPS to develop client/server solutions across their enterprise.

And all found their journey into client/server to be challenging yet extremely rewarding. Mainly because they had the ideal traveling companion. See

SEER®
We've been there.



Call 1-800-488-SEER
for a successful
journey through client/server

Agricultural Conglomerate Sharpens Competitiveness with Client/Server



acing radical changes in the agribusiness environment due to deregulation and globalization, United Grain Growers decided to update its multi-site grain elevator computing system in 1992 to improve customer service efficiency and timeliness of information.

After obtaining proposals from several vendors, United Grain selected Hewlett-Packard's HP 9000 Unix-based business servers as the foundation for its new system.

In 1993, during the period in which the grain elevator system migration was underway, United Grain began a restructuring that was necessary for it to become a publicly traded corporation. In response to demands from management for easier access to financial information and more reporting flexibility, the company also decided to move from its mainframe-based computing system to a client/server environment. Impressed with HP's technologies and pleased with its level of support on the elevator computing project, United Grain selected HP for the second project as well.

The new systems have positioned the company to respond to continuing industry changes, and streamlined internal operations.

The first project involved the replacement of aging equipment from Digital Equipment Corp. that had been put in place in multiple sites.

Project I DEC Replacement Project at Multiple Grain Elevator Sites

Multi-user HP 9000 systems streamline grain handling process. In the early 1980s, United Grain installed a DEC PDP 11 minicomputer in each grain elevator to print receipts, sales slips, checks and storage tickets; maintain inventory records and track grain shipments.

Each PDP 11 minicomputer communicated via modem with the head office mainframe (an IBM ES9000/912) several times a day, uploading business transactions and downloading commodity prices as well as shipping instructions.

United Grain wanted to move to a multiuser system with a database that elevator managers could browse for farm products, prices and delivery dates. Also required in the multiuser system were online communications capabilities that could speed the flow of information between headquarters and the elevators. But the PDP 11 minicomputers presented an obstacle to these enhancements because they could not be updated to provide the required functionality.

In January 1992, Guy Wood, United Grain's managing director of MIS, invited three vendors—DEC, IBM and HP—to learn about his company's business and to propose a solution to meet its changing needs.

United Grain Chooses Complete Business Solution

According to Wood, "HP was the only vendor to present a total business solution, including third-party software, financing, systems integration and training. They not only met our technical and price requirements, and supported our future direction, but they also proposed taking full responsibility for the project, including conversion. They committed to our schedule and were confident about their ability to implement their solution, which raised our comfort level."

Because United Grain wanted to get the new grain elevator system up and running over a winter season during the industry's slow period, timing of the conversion was critical. HP was selected in August 1992 and successfully completed the project by February 1994. As part of the transition, consultants from HP's Professional Services Organization (PSO) converted half a million lines of macro assembler code to the new platform.

Productivity Raised, Support Costs Lowered

Although United Grain is just starting to use the new grain elevator platform, it has already reaped benefits. Because the platform enables users to perform a range of functions simultaneously, productivity at the elevator sites has doubled, pleasing elevator managers and customers. "Our customers used

Most companies give you one type of database. Which is great if you only have one type of user.

Today's users come in all shapes and sizes. Funny how most vendors' databases don't.

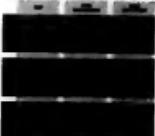
Instead, they simply offer a one-size-fits-all solution. Which, in reality, fits very few.

SPECIALIZED OPTIONS FOR SPECIALIZED NEEDS. Sybase takes a different approach. Our architecture gives you optimized database options—as well as industry-leading middleware and de-facto standard development tools—each built for a specific need and purpose.

ON-LINE TRANSACTION PROCESSING. Old information is useless information. Which is why you need the price/performance of SYBASE® SQL Server™. Achieving extremely high transaction rates, it's been proven in the toughest real-world, real-time applications.



TIME-DRIVEN ARCHITECTURE,
OPTIMIZED PRODUCTS
FOR SPECIALIZED NEEDS



THE DIFFERENCE THAT'S RIGHT FOR YOU. IT'S TIME-DRIVEN. IT'S OPTIMIZED FOR YOUR SPECIFIC NEEDS. WHICH IS WHY SYBASE OFFERS OPTIMIZED SQL SERVER—AS WELL AS TIME-DRIVEN ARCHITECTURE, MIDDLEWARE AND DEFACTO STANDARD DEVELOPMENT TOOLS—TO MEET YOUR SPECIFIC NEEDS.

DATA WAREHOUSING.
SYBASE SQL Server, together with SYBASE IQ Accelerator™ and Navigation Server™, provides high performance for planned and unplanned ad-hoc queries, scalable to terabytes and hundreds of users. No other solution lets you do that.

MASS DEPLOYMENT. You can't deploy a big, bulky database to places like your sales force and retail outlets. Which is why you need Watcom® SQL. It's designed to let your database go where it's never gone before.

SO CALL 1-800-SYBASE-1 EXT. 5037 for more information. Or visit our Web site at <http://www.sybase.com/>. After all, you've got more than one type of user. Shouldn't you have more, than one type of database?

SYBASE
The Architecture for Change

TRANSITION SUCCESS STORY: UNITED GRAIN GROWERS

to wait an average of 21 minutes for grain receipts. Wood said. "They've been pleasantly surprised to receive their documentation in seconds."

And with fewer hardware problems, United Grain's support costs have dropped dramatically. The company has been able to reassign two of the four developers formerly responsible for system maintenance.

The new platform also allows instantaneous, transparent communications between headquarters and the elevators. In the past, each time headquarters transmitted the latest commodity prices to the elevators, the system shut down for 20 minutes. Now the satellite systems can transmit prices without interrupting operations.

With the new platform in place, United Grain is redesigning other related systems. By the time we're finished, we'll have a completely new system with data accessible throughout our entire network and online communications that permit immediate information exchange," said Wood.

Project 2 Mainframe Alternative for Corporate Computing

In 1993, as a publicly traded corporation with responsibilities to stockholders, United Grain faced increasing pressure to operate more cost-effectively. This required up-to-date information and better ways of measuring performance. Rather than renegotiate the lease on its IBM ES9000 mainframe, United Grain decided to move ahead with a project that had long been considered: to migrate its mainframe-based corporate computing systems, including finance, marketing, inventory management and sales processing, to a cluster of Unix servers.

United Grain replaced its mainframe with six midrange HP 9000 business servers—including one for backup. Over 350 people in 15 locations now access the servers through Windows-based PCs over a Frame-relay network. Since United Grain had been gradually replacing its terminals over time, most users already had personal computers.

Migrating To The New Environment

One critical goal of the migration was to move to a financial system that would offer better access to financial information and greater reporting flexibility. As a mainframe customer, United Grain had developed a strong relationship with Dun & Bradstreet Software, and therefore became one of the first customers of the company's new SmartStream client/server financial solution.

The project also required porting the company's remaining mainframe applications, which included Software AG's Adabas DBMS and applications written in Natural, RPG, PL/I, and macro assembler languages, to the new Unix environment. United Grain ported the Software AG applications directly and, with HP's Professional Services Organization assisting, rewrote the remaining applications in Natural.

For network administration, United Grain uses HP OpenView Network Node Manager, which optimizes monitoring and control and reduces downtime and network and system underuse. For job scheduling, the company uses Unison Maestro workload management software.

"The biggest challenge we faced in migrating from the mainframe was the timeframe," said Terry Light, manager of systems development for United Grain.

"We started the conversion in February 1994, with the objective of completing the migration before the mainframe lease expired at year-end. We beat the deadline by a full month."

Over a 12-month period 16 mission-critical applications were converted, including 10,000 Natural objects.



"Defining a new architecture for decision support involves more than development tools. It also means understanding a company's business processes and objectives."

Guy Head, managing director of HIS,
United Grain Growers

such as programs, sub-programs and maps. "We couldn't have met our deadline without HP's PSO," stated Light. "With the size and scope of this migration and our lack of client/server knowledge, we needed their assistance in managing the project, training our staff, and running interference on problems and questions."

New System Meets Requirements, Cuts Costs

Although United Grain's main goal was to improve functionality rather than reduce costs, Wood estimates that the new system is saving the company about \$1 million a year—roughly 20% of its annual information systems cost. The estimate is based on a projection of expenditures to service the increasing demands of users if the mainframe had been retained, including costs for

Continued on page 22



Information Technology:
The **company** helping
YOU take
your **next**
step should be well
beyond taking
its **first**
steps.

Ightsizing... off-loading... client/server architectures... open systems.... At a time of unprecedented technological change, do you really have time to train your information technology partners?

Software AG has 25 years of experience with production

quality systems in mission critical environments. Hewlett-Packard is the world sales leader in UNIX systems. We're already up to speed — and we're working together. So why trust your future to beginners? Instead, call us at 800-843-9534, extension 2000.



**HEWLETT®
PACKARD**

 **SOFTWARE AG**

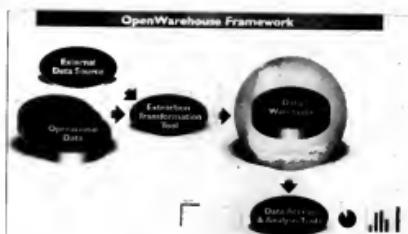
Defining A New Architecture for Decision Support

Flexibility Vital to Achieve Competitive Advantage

Today's fast-paced, global business marketplace demands that companies react quickly to changing market conditions.

However, IT organizations that depend on proprietary architectures to provide them with realtime information about their business are often hampered to meet those criteria. Not only does vital data frequently seem to be "locked up" on mainframe and proprietary midrange architectures, but delays in processing also often render information meaningless when it finally does arrive.

Implementing decision support and data warehousing solutions on open systems platforms which surround or coexist with the mainframe can provide the flexibility required in today's business environment. Companies have improved the timeliness of information retrieval, been better able to support new lines of business and made more informed decisions about distribution, pricing and new product development. Implementing decision support applications on open systems platforms brings



HP OpenWarehouse provides the framework for delivering complete data warehousing solutions through a range of hardware and software products and consulting methodologies.

new functionality to end users. It also gives MIS the opportunity to work with open systems without getting involved in the complex process of moving mission-critical, transaction processing applications off the mainframe.

Data Warehousing

In the past couple of years, the concept of data warehousing has found broad industry acceptance as a solution for decision support. A data warehouse

is a specialized decision support database, taken from a variety of operational sources and then "scrubbed" to eliminate any inconsistencies or errors.

Because the data warehouse is a separate database, access to it does not impact operational systems. Knowledge workers receive immediate value from the data warehouse through using a variety of access and analysis tools to create general purpose reports, to perform ad hoc queries and to drill down into more detailed layers of data.

Hewlett-Packard has been a pioneer in creating cost-effective, efficient solutions for data warehousing. HP has

experience in creating a centralized, enterprisewide data warehouse for its own executives, marketing and sales personnel, and has worked with more than 100 data warehousing projects in a cross-section of industries.

Based on that experience, HP has developed practices and methodologies, as well as a set of tools to enable organizations to make better use of data warehousing in an efficient implementation process.

HP OpenWarehouse Framework. At the core of HP's decision support implementations is the program known as HP OpenWarehouse. HP OpenWarehouse provides the framework for the company's ability to deliver complete data warehousing solutions through a range of hardware and software products and consulting methodologies. The components of HP's OpenWarehouse are designed to rapidly translate user requirements into fully functioning data warehouses that help companies achieve their business objectives.

HP OpenWarehouse solutions can handle databases of a few gigabytes on a single processor server to databases of multiple terabytes on clustered server environments. HP's framework is unique in that it allows customers to plug in the specific RDBMS and data warehouse tools that best fit their specific business requirements.

In addition, HP has strong technical and marketing relationships with the major providers of data warehouse components, including suppliers of extraction/transformation tools, database management environments, and data access and analysis tools.

• **HP Intelligent Warehouse.** To address customer concerns about data ware-

house manageability and usability, HP has developed the HP Intelligent Warehouse data warehouse management software. Intelligent Warehouse consists of open middleware together with administrative tools to help administrators manage, tune, and handle security in data warehouse environments.

Intelligent Warehouse also provides greater ease of use for end users through centrally managed business views that can be used by most ODBC-compliant data access tools and many OLAP (on-line analytical processing) tools. In enterprise configurations, Intelligent Warehouse can play an even larger role as a unifying backbone for enterprise decision support systems with both data and metadata integration.

Consulting Services. Defining a new architecture for decision support involves more than making use of development and management tools. It also requires the understanding of a company's business processes and objectives. HP's consulting services are designed with that in mind, ranging from simple technology and expertise transfer to full systems integration with HP assuming prime responsibility.

For a company partnering with HP, the path to a successful implemen-

tation typically consists of a scoping engagement followed by rollouts of the phases of a data warehouse project. The scoping engagement analyzes business objectives, user requirements, the

"To build medium- to large-scale data warehouses, IT must engage the services of a competent integrator. With both a capable consulting staff and innovative data warehousing software, HP should be on IT's short list for data warehouse implementations."

December 30, 1994 Application Development Strategies report, Menlo Group

operational environment and the target architecture requirements and delivers architecture recommendations. The subsequent rollout phases demonstrate the business value of the warehouse, integrate it into the organization's existing systems, and finally expand its role into an enterprise-wide resource.

Successful Pilot Earns Worldwide Rollout

Successful decision support architectures reap immediate benefits. In one case, a global consumer packaged goods company had spent a year trying to implement a proprietary decision support system on an IBM 3090 before giving up on the mainframe as too slow and too expensive.

HP implemented a solution based on an open, client/server architecture with HP 9000 servers and standard Microsoft Windows clients. Data was extracted on a regular basis from the operational databases on an IBM mainframe and integrated with point-of-sale and retail-inventory data in an Oracle RDBMS on the HP 9000 server. A sec-

IT Drivers for Decision Support on Open Systems

IT Drivers

- Use less costly computing resources
- Provide flexible environments which accommodate changing market conditions
- Preserve stability of current mission critical systems
- Release data from the glass house "jail"

Technology Trends

- Reliance on mainframe alternative platforms
- Migrate to open systems taking advantage of new client server applications
- Migrate decision support applications to open systems and thus "test the waters"
- Develop data warehouses, growing market of sophisticated, easy-to-use decision support tools for end users

DRIVING THE TRANSITION TO A FLEXIBLE IT ENTERPRISE

ond server further summarized the data for analysis purposes.

The results of the implementation showed a dramatic 30% to 40% decrease in the time that the company's employees spent searching for information. Reports that previously took two weeks or more to produce manually became available on line in less than a minute.

Defining a new architecture for decision support involves more than making use of development and management tools. It also requires the understanding of a company's business processes and objectives.

Based on the success of the original pilot, the company has deployed full scale data warehouses in two countries and plans to expand its implementation to encompass additional business units worldwide.

Summary

Implementing a decision support application on open systems can provide the flexibility needed in today's business environment. Defining a new architecture for decision support involves more than an understanding of the databases and tools that best serve the needs of a company. It also involves a thorough understanding of a company's business processes and the ability to provide flexible solutions.

Through its success in rearchitecting its own decision support system, its OpenWarehouse solutions framework, and its partnerships with data warehouse component suppliers, HP is prepared to offer cost-effective, efficient decision support solutions that will grow with a company's needs. *

Dun & Bradstreet Information Services Builds Data Warehouse with SAS System



Dun & Bradstreet Information Services (DBIS) is the world's leading supplier of risk management, credit and marketing information and decision support services for business customers. In the past few years, DBIS has significantly changed its marketing strategy and subsequently delivered a number of new products and services including portfolio-risk analysis and database-marketing services. During this same period, DBIS was asked to reduce its costs by offloading their processing from the mainframe.

Before the downsizing, many requests for information about customers' accounts took at least one day to process, including several hours of programming time. SAS Institute utilities running on the mainframe were used to bring together data from various files, manipulate the data and derive new information tables. Not only was this process highly time-consuming, but the staff also experienced problems in obtaining processing time on the mainframe.

The solution that DBIS implemented was to build a data warehouse on an HP 9000 Unix-based platform using the SAS System tools they were familiar with and to deitize the system to processing customer information requests. With SAS on the HP Server, the total time to download data from the mainframe, and to build and index the warehouse is 11 hours. The programming staff uses SAS SQL modules to interface with the data warehouse. Pulling customer records is now a one-step process, typically taking several hours, instead of several days. With a dedicated processor, obtaining computer resources is no longer a problem. The data warehouse project took approximately one year from evaluation to creation, plus another six months of testing and tuning.

Not only did the DBIS/SAS System data warehouse solution speed things up, it has proven to be flexible as well. "The data warehouse continues to grow — it is not a static entity," said Karen Grippio, senior application consultant for DBIS. "It is constantly changing as we lead more and more data down to the HP system."

The DBIS/SAS solution has had a positive effect on DBIS' bottom line. "The major benefit has been to derive the turnaround time so we can provide much quicker response to customers," said Grippio. "These new services generate significant new revenue in their initial release. HP and SAS continue to allow us to grow in the future."

Adds Grippio: "Specifically in the area of client/server computing, HP and SAS allow us to move the power closer to the customer — and that is our goal."

Decisions Are a Lot Easier When You Don't Have To Choose Sides.

Don't Take Chances With Your Future

When you take a piecemeal approach to making hardware and software decisions, you're basically flipping a coin.

Will the software pieces work together? Will it take a long time to implement? Will the solution grow with my business needs? Will the vendors work together to ensure my success?

No Weak Links

When it comes to enterprise information delivery, you don't want an incomplete solution. Or one that doesn't fully integrate software and hardware. You shouldn't have to "choose sides."

What you do want from your vendor is a track record of success — based on

experience, product breadth and customized support capabilities. A partnership that delivers solutions that work together seamlessly to maximize performance and minimize cost.

The Best Of Both Worlds

In this case, the right decision is the SAS® System for Information Delivery running on Hewlett-Packard's HP 9000 series of Business Servers.

On the software side, you get a fully integrated environment to support better decision making — data warehousing, executive information

systems, object-oriented rapid application development and data visualization.

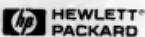
On the hardware side, you get all the advantages of powerful RISC architecture in a fully open client/server environment.

Together, you get complete integration and total support from two established leaders in information technology. And because the entire offering is modular and scalable, it can even save you money.

Don't take chances, take action! Call 1-800-HP-ASK-ME ext. SAS1 for a free decision support action kit today!



SAS Institute Inc.



SAS Institute Inc.
Corporate Headquarters
SAS Campus Drive, Cary, NC 27513

Hewlett-Packard Co.
Corporate Headquarters
100 Hawser St.
Palo Alto, CA 94301

GE Appliances Builds a Flexible IT Environment



E Appliances, a \$6 billion division of GE Corp., manufactures a wide variety of major home appliances and employs some 23,000 people.

GE Appliances has a reputation within GE for being very experienced and knowledgeable about client/server architectures, even hosting "best practices" sessions to share its growing expertise. All this knowledge has been earned in a relatively short period of time as GE Appliances transformed itself from an organization heavily dependent on Bull and IBM-compatible mainframes and proprietary mid-range systems to an organization leveraging the power of client/server in a multi-platform environment.

Transition to Client/Server

Before the transition to client/server, the data needed for decision support was not readily accessible, was sometimes unreliable, and was expensive to gather and display using mainframe resources. Then a decision was made to move off the mainframe, and the IT organization began to look at reengineering its decision support systems as a first step in its mainframe offload.

Now, little more than two years later, the company has moved full-force into client/server. More than 50 HP 9000 systems run more than a terabyte of operational and decision support data, primarily with a leading RDBMS in

a Unix environment. At the heart of this transformation is GE Appliances' emphasis on defining a new architecture for decision support.

"Originally we only thought offloading the mainframes to a client/server architecture would offer cost savings, but along the way we discovered that client/server was also the solution to many of the limitations we faced in our decision support systems," said Stephen G. Crane, process leader for information warehousing.

Implementing a Data Warehouse

GE Appliances based its new decision support architecture on the concept of data warehousing, where operational data from multiple sources is extracted, reorganized and cleaned up, then loaded into a new database around informational subjects. Unlike the operational systems, the data warehouse is optimized for decision support queries, rather than transaction processing. To date, GE Appliances has implemented three data warehouses — in Sales, Service Management and Quality — with a total database of over 250Gb.

Sales Management. In the Sales operation, data is pulled from eight different operational systems and used to build a large relational database on an HP 9000 T500 6-processor system with a Microsoft Visual Basic front-end application.

The warehouse provides analysis of sales and profit margin data, allowing salespeople to analyze pricing and promotion data on an account-by-account basis. The information now available includes sales data on individual cus-

"Originally we only thought offloading the mainframes to a client/server architecture would offer cost savings, but along the way we discovered that client/server was also the solution to many of the limitations we faced in our decision support systems."

Stephen G. Crane

Process Leader for Information Warehousing

tomers, actual sales vs. plan numbers, and the sales trends in particular markets or regions.

"Using the data warehouse, we get a complete analysis at the customer level, which gives us a truer picture, as opposed to bits and pieces of information," Crane said.

One unexpected benefit of the warehouse has come from the process of validating and cleaning up the operational data.

By applying the same set of rules to data in reports coming out of the operational systems to those from the warehouse, inconsistencies can be traced back to the operational side and corrected. This has led to improved data integrity at the operational level.

Service Management and Quality GE

Imagine they're a duet.



Composer
by IEF™



Because they are.

Composer by IEF™ and the HP® 9000 Series 800 multiuser systems are making some beautiful music together. In fact, almost 100 organizations are now using this duet to generate stable and reliable solutions in the HP-UX® computing environment.

That's because these powerful per formers provide users with the industry's most robust application development tool on the industry's most successful UNIX hardware.

Composer by IEF automates the entire systems development life cycle, from planning and analysis, through design and code generation (C and COBOL) to database implementation. This not only makes for faster development time, but helps improve the productivity of your processes.

What's more; you can realize the benefits of creating and maintaining applica-

cations for multiple environments from a single, reusable model. The entire HP-UX application can be generated at one time. Or components of the application can be generated individually. And the generation takes place at a single workstation.

The reusable model helps lower development at time, risk and costs. While ensuring both improved performances across platforms, and greater longevity for your information systems.

So you can imagine how much faster and more productive your organization can become.

For more information about the IEF for Client/Server, call 1-800-838-1843, Ext. 1435. For more information on what the HP 9000 Series 800/700 Systems can do for you, call 1-800-637-7740, Ext. 8352. They'll make you think twice about using anything else.

Relax and
enjoy the
performance.



Composer by IEF is a trademark of Texas Instruments Incorporated. HP and HP-UX are trademarks and Hewlett-Packard is a registered trademark of Hewlett-Packard Company. © 1989 TI.

TRANSITION SUCCESS STORY: GE APPLIANCES

Appliances has also implemented the data warehousing concept in its Service Management operation, which manages warranty and service contracts for all appliances sold.

Since Service Management is an independent profit and loss center decision support data in this area is as important as in product sales. The Service Management warehouse is housed on an HP 9000/T500 6-processor system and has over 100GB of disk. Desktop data access and reporting is done with standard third-party query and reporting tools.

A third solution is GE Appliances Quality data warehouse, which is used to perform root cause analysis on appliance quality issues. The warehouse will eventually be used by several hundred employees and is based on an HP 9000 high-end server.

Intelligent Warehouse

As GE Appliances developed its data warehousing architecture, it fore-saw the need for a unifying set of middleware that would tie together its multiple warehouses and provide a

"Our main goal for this activity is that, as our organization begins to use these warehouses, we will have more and more instances where people will want to identify linkages between the information in different warehouses."

Stephen G. Crone
Process Leader for Information Warehousing

complete information view to its end users. The company evaluated HP's Intelligent Warehouse software and selected it to provide this single information-resource capability together

with greater ease of use and improved warehousing performance.

Intelligent Warehouse provides end users with a business view of the ware-

Next Level

Looking ahead, GE Appliances expects to take its data warehousing activity to the next level using HP Intel-

Intelligent Warehouse at GE Appliances



Intelligent Warehouse provides end users with a business view of the warehouse and shields users from having to see the more complex physical仓库、tables and databases of the data warehouses.

house and shields users from having to see the more complex physical columns, tables and databases of the data warehouses. GE Appliances has also seen significant performance benefits from Intelligent Warehouse. Although results have varied, reporting time in one instance has been reduced from between 18 and 24 hours to less than two minutes.

Intelligent Warehouse also provides the data descriptions or metadata that form the basis for GE Appliances Encyclopedia — an end-user information catalog that allows users to easily determine both what data elements are available in the warehouses and what are the business definitions for that data.

Intelligent Warehouse is now implemented for the Service Management warehouse, and integration with the Sales and Quality warehouses will take place over the next few months.

Intelligent Warehouse to correlate data between the functionally separate warehouses, creating what would be, in essence, a single logical warehouse. An example would be comparing service contracts against production line problems to find the root causes of product defects and to suggest changes or improvements.

"Our main goal for this activity is that as our organization continues to use these warehouses, we will have more and more instances where people will want to identify linkages between the information in different warehouses," said Crone.

"We want to give the user the ability to correlate data between physically separate warehouses, transparently — as though the decision support system for GE Appliances were a single information source."

"That," he added, "will really provide important long-term benefits."

Transitioning the IT Skill Set

along the transition to an open, client/server environment presents challenges ranging from modifying your computing architecture, to changing your business practices, to realigning your organizational structures.

Often the greatest barriers are resistance to change and a shortage of the necessary IT skills. Overcoming these barriers is vital to a smooth, cost-effective transition.

IT managers must develop strategies for dealing with this transition period. During this period, an organization is transformed from one with a set of well-developed, yet increasingly outdated skills, into an organization with a set of newly-acquired skills, ready to redefine its future.

One strategy is to work with an experienced transition consulting team to create a transition solution which arms your internal IT staff with the skills needed for success. This process includes assessing the impact of the proposed solution on the organization, performing a training needs analysis, and finally developing an education approach.

Another strategy to manage the transitional period is to blend the skills of your internal IT staff with the focused expertise of a vendor well-versed in client/server through "selective outsourcing." At the same time, a coordinated, comprehensive education

program ensures that an organization's internal resources, from executives to front-line professionals, all develop the attitudes and skills to support the new technology.

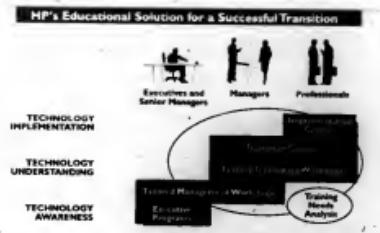
Transitional Education

Goal of Training If client/server enables IT systems to support business change, then education and training enable individuals to support change in IT systems. In the future most organizations will survive or fail on the basis of the collective

client/server architecture. It also involves developing the right attitude and skills to support the new technology.

Effective training reduces resistance to change by removing doubts about the new technology. It builds confidence among your staff so they can make a valuable contribution in the new computing environment. Investing in training demonstrates your commitment to success. With the right training your organization will support the transition to an open systems, client/server environment with enthusiasm, motivation and effective actions.

Benefits of Education Effective education not only provides your staff with a shared vision of how open systems and client/server will strengthen your organization, it also will build enthusiasm for new technology directions, will enable faster development of the skills needed



Effective training not only provides a shared vision of how open systems and client/server will strengthen an organization, it also allows faster development of the skills needed for the transition.

skills and capacity of their workers. Nowhere is this more relevant than in our IT organizations.

Transitional education involves more than just taking employees through the basics of open systems technology or

for the transition, and will ultimately result in a smoother and more successful deployment.

Methodology and Approach HP recognizes that education and training during a transition are essential to its success.

DRIVING THE TRANSITION TO A FLEXIBLE IT ENTERPRISE

and accordingly has developed a coordinated and comprehensive program to build awareness of the new environment, generate understanding and develop technical implementation skills.

For example HP's transitional education includes instruction on how to perform traditional data center functions in a client/server environment and explains the similarities and differences between mainframe and Unix systems.

Drawing upon more than 100 existing client/server seminars, workshops and courses and offerings by our training partners, HP creates an individualized program that delivers the right training mix for your business needs. To identify skills gaps, HP education consultants begin with a thorough training needs analysis. An important early step involves preparing both business managers and IT staff for change by building a common awareness and understand-

ing of open systems and client/server and their impact on business strategy and goals. The objective is to align business and IT. This step creates support for the technology vision, facilitates organizational change, increases effectiveness, follows up after implementation and raises your employees' learning levels.

Success with Tennessee Education Services Forest products giant Weyerhaeuser is one company that has recognized the importance of education to the successful transition of its corporate wide IT infrastructure. Weyerhaeuser is in the midst of a 7- to 10-year migration to open systems from a huge and diverse mainframe-based computing environment.

Working with HP, the company has outlined a four-step retraining plan to help more than 900 IT professionals throughout the US and Canada to understand what open systems are; the

expected benefits and the employees' respective roles in the transition.

The curriculum also gives them technical skills and knowledge so they can plan, implement and support open

Working with Hewlett-Packard, Weyerhaeuser has outlined a retraining plan to help more than 900 IT professionals throughout the U.S. and Canada to understand what open systems are, the expected benefits and the employees' respective roles in the transition.

systems themselves. Realigning information technology resources with business objectives will also enable Weyerhaeuser to create the differentiated services and products that are crucial to its achieving world class leadership.

Outsourcing For Client/Server

Selective Outsourcing Outsourcing refers to buying IT services from a vendor that your internal IT staff might have performed otherwise. Many organizations have been hesitant to outsource because it meant relinquishing control to an outside vendor, possibly becoming locked into a long-term contract with hidden costs, and having no way to ensure quality performance.

To address these concerns, Hewlett-Packard has pioneered the concept of "selective outsourcing," a short-term, scalable, low-risk relationship in which IT management selects exactly which IT activities will be outsourced. Selective outsourcing provides maximum flexibility and allows companies to complement internal resources with external expertise while maintaining control of IT responsibilities and strategies.

Outsourcing During the Transition

Systems Management Services	Provide monitoring, backup administration and other operational activities for centralized as well as distributed systems from HP and other open systems vendors.
Network Management Services	Provide monitoring, fault detection, problem resolution, and performance reporting for wide and local area networks.
Help Desk Services	Provide end users with direct access to HP support engineers for desktop application assistance, trouble-shooting and problem management.
Business Recovery Services	Provide planning, orchestrated rehearsals, and access to backup computing to minimize the impact of disasters on your organization's technology resources.
Consulting and Systems Integration Services	Provide services for the planning, design, implementation, and project management of open, client/server IT solutions.
Provider of Services	Provide flexible solutions for acquiring and disposing of a broad range of technology assets to meet cash flow requirements.
Implementation Services	Provide engineering, installation and configuration expertise to implement desktop and networked environments.
Maintenance Services	Provide fault tolerance and repair of multivendor desktop and networked environments.
Edutainment Services	Provide custom education and over 200 courses including a broad portfolio of open client/server training.

Through HP's selective outsourcing, customers can choose parts of one or any combination of the nine services listed and described above.



Vancouver Stock Exchange

The Vancouver Stock Exchange needed a new generation trade clearing system to run in 50 sites across Canada.
Their choice: *Dynasty & Hewlett Packard*

Ericsson

Ericsson needed an enterprise client/server application for managing cellular networks in 17 countries around the world.
Their choice: *Dynasty & Hewlett Packard*

THE CHOICE: DYNASTY & HEWLETT PACKARD

When it's time to build an open enterprise client/server application that is:

- Open
- Cross platform
- 3-tier
- Target Independent
- Partitioned
- Scalable
- Fast! (C and optimized SQL Generation)

The Choice is: DYNASTY

Dynasty is a strategic partner with Hewlett-Packard, actively supporting both the HP Open IT programs and the HP Mainframe Alternative program.

**Call 708.769.8500
today for a FREE whitepaper**

In An Open Systems Approach to Application Partitioning.
You'll find Dynasty is the clear solution to your open enterprise client/server development challenges.

"Dynasty is a key strategic application development partner with HP. Dynasty's target flexibility and 3-tier approach is very well aligned with the philosophy of HP's 'Open Enterprise Computing'. This allows our customers to develop a flexible enterprise-wide information environment."

Alain Grambert,
HP Program Manager, Europe



Building the Open Enterprise

Dynasty Technologies Inc. • 650 Warrenville Road, Suite 300 • Lisle, Illinois 60532 • 708.769.8500 • FAX: 708.769.9903

DRIVING THE TRANSITION TO A FLEXIBLE IT ENTERPRISE

During a major transition such as the move to open systems client/server selective outsourcing supplements the internal skill set with specific technical expertise, tools and processes that will better manage the transition process.

In some cases, the vendor supplying outsourcing services can be used as an interim solution until internal resources are hired and trained. In other cases you may not want to invest internal resources in skills that will only be used for a transitional period or for activities that are not considered strategic to new technology architectures.

Benefits of Selective Outsourcing. Outsourcing allows a company to focus its internal staff on core competencies, or strategic business and IT issues, and to avoid permanent staffing costs in more transitional areas.

Selective outsourcing also improves performance by providing needed technical skills and products, including access to technical experts, industry-leading systems management and network management technologies, and methods proven in other organizations.

in similar industries. Selective outsourcing also helps contain costs by avoiding expenses normally associated with bringing IT organizations "up the learning curve." Each of these benefits is

Selective outsourcing improves performance by providing needed technical skills and products, including access to technical experts, industry-leading systems management and network management technologies, and methods proven in other organizations in similar industries."

best summarized thusly: Selective outsourcing improves an organization's effectiveness and ability to adapt to change.

Success with Outsourcing. Keramag AG, a German manufacturing company, decided to reengineer its IT infrastructure to support strategic business initiatives in customer service and delivery. Keramag implemented a new client/server-based application environment, upgraded hardware, developed a powerful PC LAN, and integrated the

warehouses and production facilities through a WAN.

Keramag outsourced the software development to the application vendor and the IT management to HP. This outsourcing solution ensures that Keramag's information and its IT infrastructure are accessible even if part of the network or system goes down.

FoxMeyer Health Corp. is expanding its business to provide information-based healthcare services throughout its entire supply chain. The company decided to seek help in creating and managing the new client/server-based environment because client/server technologies were new to its mainframe-focused IT staff.

FoxMeyer selected HP as its technology integrator not only for the transition but also for the ongoing management of the client/server environment, including performance of its frame relay network.

Through selective outsourcing, FoxMeyer was able to achieve high levels of technical skills immediately after the new system was implemented.*

UNITED GRAIN GROWERS SHARPS COMPETITIVENESS WITH CLIENT/SERVER

Continued from page 10

hardware upgrades and software.

The entire corporate system is also more flexible and responsive to user requests, which is critical in a deregulated environment where information needs change constantly. "This flexibility allows our department to be more of a coach to users," Wood said. "Instead of designing systems for them, we can give them the flexible applications they need

to create their own reports and adapt them as the business changes."

Platform for The Future

Although United Grain is already benefiting from its new systems, it has just begun to exploit these tools. "Moving to Unix has allowed us to build a platform for the future," said Wood. "We now have a cluster of servers

that can run batch, online and client/server applications, allowing our developers to design applications that meet user needs without having to design around technical constraints," he added. "With the speed and flexibility this new infrastructure provides, we're positioned to respond as deregulation and globalization continue to impact our industry." *

Master the Risk, Reap the Rewards

Huron® ObjectStar™ from Antares Alliance Group minimizes the risk of migrating to client/server

How can global information technology (IT) organizations implement client/server applications while retaining valuable legacy assets? Antares Alliance Group, an international channel partner in Hewlett-Packard's Mainframe Alternatives Program, minimizes the risk of transitioning applications from the mainframe to open computing environments with its Huron ObjectStar software.

ObjectStar helps companies take full advantage of the benefits of distributed computing. ObjectStar enables creation and implementation of client/server applications that seamlessly integrate new applications and legacy systems. Even decades-old applications can be selectively renewed and redeployed at a pace that meets business needs. This means organizations can maximize current IT investments — hardware, software, and staff — without starting from scratch.

When Isuzu Motors America wanted to input user-requested changes in real-time, and to actively involve users in new systems development, ObjectStar delivered. Now that Isuzu is building applications with ObjectStar, according to Gary Gray, Isuzu's Vice President of Business Management and MIS, "The number of requests to enhance our latest system after it moved into production is almost zero."



End users are involved throughout the development process, enabling the development team to produce high-quality applications that are aligned with strategic business goals.

So make the most of your legacy computing investment...improve developer productivity...integrate old and new systems. Do it all in record time with the only enterprise client/server integration system that seamlessly blends legacy assets with new technologies.

For Omaha-based MATRIXX Marketing, ObjectStar delivered impressive two to five times gains in productivity with online applications. "Huron ObjectStar delivered speed, flexibility, and the ability to make application changes easily," said Ed Steele, Systems Administrator, MATRIXX Marketing.



Find out how ObjectStar can safeguard your client/server migration. Call Antares Alliance Group at 800/416-2888 (ext. 175) and 44 1252 344 400 outside North America, or Hewlett-Packard at 800/HP-KNOWS.

ObjectStar is easy to use. With only a few weeks of training, developers can deliver multi-platform, client/server applications. ObjectStar supports distributed computing from the mainframe to the desktop.

Antares
ALLIANCE GROUP



Every day, you make
decisions that determine the
future of your company.

What computer system
do you have?

To drive your transition to a flexible
IT enterprise, you need HP Professional
Services' world class consulting,
education and systems integration.
If the business decisions are yours,
the computing solution should be ours.



Computer Systems

SIM Interchange '95

The Society For Information Management's Annual Conference

Walt Disney World Dolphin Hotel
Orlando, Florida
October 22-25, 1995

- Do you travel in the right circles to make you a more effective IT executive?
- Are you learning and exchanging experiences with your peers?
- Is your skill set at its optimum?
- Are you prepared for emerging trends?
- How are you coping with today's challenges?

SIM Interchange '95 uncovers new strategies for business challenges facing information management professionals through:

Valuable interactive strategy groups focusing on:

- IT and Reengineering
- IT Management — The Next Generation
- Linking Business with Technology
- Future Trends and the Impact of Technology

Peer-to-peer exchanges during the CIO Portfolio, offering a candid look at the role of the CIO in today's organization.



For registration
information, call
800.SIM.0035.

The Right Circle for
IT Leadership



Presentations by, and question and answer time with, high profile industry leaders, including:

- George Conrades, president and CEO, Bolt, Beranek and Newman, Inc.
- Jean Claude Dispoux, senior vice president, Information Technology and Logistics, Nestlé Group
- John Landry, Chief Technology Officer, Lotus Development Corporation
- E. Warren McFarlan, professor of business administration, Harvard University
- Gerald Prothro, vice president and CIO, IBM Corporation
- Skip Savoia, vice president, CSC Consulting

#6

LINKSWITCH
WORKGROUP
SWITCHING

It's about switching perceptions, breaking



It's about finally getting the bandwidth your workgroups need at a price you can afford. Only 3Com® has brought you the power of switching for the price of a traditional repeating hub. It's safe, cost-effective and just plain fast.

Our breakthrough ASIC technology gives you high speed at a low cost. This combination makes the LinkSwitch™ 1000 switch a "must have" piece of hardware for your network.

But this isn't simply a short-term plan to boost bandwidth. 3Com supports all high-speed technologies, like Fast Ethernet,

FDDI and ATM, so the entire LinkSwitch product family can eliminate server bottlenecks today and play a huge role in the long-term design of your network. It's a major victory for your workgroup and desktop performance.

LinkSwitch products can stand alone or work as part of the SuperStack™ system. Like all of 3Com's SuperStack products, they can be backed up by our Redundant Power System and managed from one single desktop with Transcend™ network management software.

3Com SuperStack™ WORKGROUP SOLUTIONS TOKEN RING SOLUTIONS LAN/WAN SOLUTIONS BUSINESS COMMUNICATIONS SOLUTIONS
©1993 3Com Corp. (408) 764-5000 3Com, LinkSwitch, SuperStack, Transcend and Networks That Go the Distance are trademarks of 3Com Corp. To learn more visit 3Com's World Wide Web site at <http://www.3Com.com>.



down barriers and letting your desktops fly.

3Com[®]

Viewpoint

Et tu, OS/2?

IBM Chairman Lou Gerstner sent a chill through managers at big OS/2 sites last week with statements — which he later said were taken out of context — about the fate of the operating system.

While initial reports may have liberally interpreted his remarks, follow-up interviews by our own reporters, as well as Gerstner's letter of clarification, do seem to indicate at least a modest change in the way IBM will position OS/2.

IBM has stood steadfastly behind OS/2 as a client and a server product since the day Gerstner took the reins at IBM. In his first big address on the subject, via teleconference at Comdex two years ago, Gerstner tied OS/2 explicitly to the long-term success of IBM. Another senior executive said of OS/2, "Our commitment is unwavering."

I don't care what they said; today there's at least a little whimpering going on at IBM. There are some signals that IBM will finally concede the stand-alone and small-client market to Windows 95. No more funky run ads.

As for the enterprise, a company official assured us last week that IBM will "not go dark" on OS/2, adding the stock line about being "absolutely committed" to it. He was quick to note that the addition of Notes to the IBM product stable will no doubt affect IBM's plans to market to the corporate desktop in what way is yet to be seen.

All this said (vaguely, as it comes from IBM), should those of you managing big OS/2 sites be worried?

No, I don't think so. While Microsoft is the obvious winner at the client level, IBM still has a superior enterprise strategy. No other company has IBM's eradicable pedigree when it comes to offering a total enterprise package, and that means balancing pure product expertise with service, support and integration. OS/2 is a key element in that strategy. Besides, it works.

Instead, managers will continue to weigh OS/2 on servers and fat clients against Microsoft's Windows NT. That's the real battle for which IBM is gearing.

Bill Laberis

Bill Laberis, Editor in chief
Internet: blaberis@cw.com



No winners

I agree with those protesting the buyout of Legent Corp. by Computer Associates, Inc. [Legent sale sparks write-in campaign, CW, June 12].

When CA took over Parapac Systems, Inc., technical support became difficult and marketing support evaporated. I could never find anyone in the local office to answer questions or give me price information, for that matter.

A number of years ago I worked at another smaller software firm CA bought its products, which were never marketed after that. Why? CA obviously wanted the customers, not the products.

I don't see anyone benefiting from the proposed merger of CA and CA. Meanwhile, the food chain gets smaller, the choices for software fewer. Our shop is small enough to control tapes manually, but if we're looking for a tape management system and the merger goes through, I believe I'd write my own rather than go to CA. All I can say

is at this point is thank God that the management at Landmark Systems had foresight enough to put measures in place to prevent such an event from happening there.

Jim Wilson
Sun Mateo, Calif.

ing down the problems and working with the vendors to get resolutions and are bringing the project to a successful conclusion.

John G. Dasilva

Gas Research Institute
Chicago
jdasilva@gri.org

Show of support

I would like to clarify and update my comments in "Support shouldn't be this tough" [CW, July 3]. When I spoke to the reporter in May, I discussed several projects here at Gas Research Institute — those that I was directly responsible for and those that my colleagues were managing. My intent was to give a broad overview of GRI's experiences in dealing in the multivendor client/server world.

John Mayer did an excellent job of capturing not only our frustration but the frustrations of other users. The fax server project was headed by my colleague Peter Cangolosi and his staff. My involvement was primarily as a user tester. They did an excellent job of track-

Power move

Analysts overlooked two significant reasons the IBM/Lotus merger is a great deal for IBM. First, IBM desperately needs application software for OS/2. Lotus is one of the few major developers to produce successful OS/2 programs.

Second, as a software developer for Microsoft's Windows 95, Lotus has been and will continue to be exposed to Microsoft's future plans. This could provide IBM's operating system planners with tremendous insight into Microsoft's operating system strategy. Additionally, Lotus' experience with Windows 95 will certainly allow it to advise IBM about how to integrate and support other Windows 95 application programs in OS/2 environments as Windows 95 evolves.

It will be interesting to see how Microsoft and the Justice Department react when these factors are considered.

Robert Wintersmeier
Croton-on-Hudson, N.Y.

■ Computerworld welcomes comments from its readers. Letters should not exceed 200 words and should be addressed to Bill Laberis, Editor in Chief, Computerworld, P.O. Box 9172, 375 Cochituate Road, Natick, Mass. 01760. Fax number: (508) 875-8932; Internet: letters@cw.com. Please include an address and phone number for verification.

First things first

When you noted the death of J. Presper Eckert [News short, CW, June 12], you perpetuated a common error by crediting Eckert and John W. Mauchly with the invention of "the first digital computer."

While Eckert and Mauchly created the Electronic Numerical Integrator and Computer during World War II, the first known digital computer was the Model K, built by George R.

Stibitz on his kitchen table in 1937. In the fall of 1939, the Complex Number Computer was in operation at Bell Labs, serving three-type machine clients.

An interesting side note is that Mauchly attended a meeting of the American Mathematical Society at Dartmouth College in 1940 at which Stibitz gave a demonstration of the Complex Number Computer from a remote distance.

Mark W. Farnham
Lebanon, N.H.
mwf@ccsleb.com

My cybermall went cybersplat

Jeffrey C. Frost



The power of hypertext linking as a marketing tool is grossly overrated. On-line brochures aren't enough.

In June 30, my electronic shopping mall on the Internet's World Wide Web shut its doors and laid off employees. The CyberMall Corp. site supported about 1,200 Web pages for more than 70 companies at the time.

But rather than continue the charade of promoting a business model that just doesn't work — namely, the first-generation Web site for consumer goods and services — we closed up shop and made a re-emergence *cyberplat*.

By **Jeffrey C. Frost**, President, CyberMall Corp., Somers, N.Y. Frost previously was Vice President of Marketing at PC Software Mktg. Inc. (PSMI), New York City.

Gary H. Arthur, Government & Security
David J. Berman, Business Development
John C. Bierman, Vice Chairman
Kurt C. Bierman
Steve Bierman, Vice Chairman
Lisa P. Bierman, PC Software
Mark C. Bierman, Vice Chairman

Patricia B. Seybold, President

David R. Bierman, Vice Chairman
Sister-Wives
Leahine Bierman, Vice Chairman
Mike Bierman, Vice Chairman
Andy Caudill, Vice Chairman

Staff Writers
John C. Bierman
Ronald E. Bierman

Newspaper Writers
Steve Dicks
Gretchen Lohmer
Sally M. Mays

Features Department

Joseph M. Goss, Features Manager
Lori Tafra Goss, Art Director
Mike Goss, Associate Features Manager
Kathleen Goss, Design Manager

Senior Researcher

Keith Bierman, Vice Chairman

Software Project Leader

Steve Bierman

Managing Director, Technical Services

Mark C. Bierman

Senior Research Manager

Steve Dicks

Graphics Coordinator

Sally M. Mays

Designers

Mark C. Bierman, Design Manager

Steve Dicks

Graphic Designer

Steve Dicks

Assistant Chief Copy Editor

Steve Dicks

Copy Editor

Customer Service, Special Edition printing

Copy Letters

Customer Service, Sales

Customer Support



Technology that's
powerful, *flexible* and
productive is good.

Technology that's
also easy to use

is PowerBuilder.

All the technological bells and whistles in the world mean nothing if no one in the enterprise can use the tool. PowerBuilder® Enterprise, one of the most innovative and powerful tools on the market today, has everything you need for true

client/server development. Yet, for all its impressive and powerful technology, it remains the most intuitive, easy-to-use environment available. PowerBuilder is *Object Powered* with polymorphism, encapsulation, multi-level inheritance

Does your development tool meet these criteria?

Powerful Technology
Open Architecture
Scalable Environment

and classes for modeling visual and non-visual objects. It's *Data Smart* with an intelligent DataWindow™ object for database manipulation, a Data Pipeline for easy data migration, as well as native DBMS drivers, and full ODBC support. PowerBuilder is *Team Enabled* with a centralized data repository, check-in/check-out, and interfaces to leading version control technologies guaranteeing you'll be able to work seamlessly with your colleagues. And PowerBuilder's graphical *Integrated Environment* ensures maximum productivity. PowerBuilder. The only tool that combines powerful technology with an open architecture and a scalable environment. For more information or to see PowerBuilder for yourself at one of our seminars, call 1-800-395-3525.



Powersoft
Building on the power of people.

Powersoft Corporation, (508)287-1500. <http://www.powersoft.com/> Powersoft Europe Ltd., United Kingdom, +44 1494 555555.
American Powersoft Corporation Pte Ltd., Singapore, +65 338-0018. All trademarks and registered trademarks are property of their respective owners.

Desktop Computing

PowerPC needs jolt

Lack of native software apps, gee-whiz features hurt potential

By Howard Milman

With the release of the PowerPC, IBM has turned back the hands of time to 1982.

Then, as now, IBM created a costly desktop computer that lacks application software, offers mainstream operating systems and has scant apparent customer demand. Back then, a market in search of these things coalesced around IBM's PC. Today, it probably won't because all these things exist for other products.

The raw road

From a raw performance perspective, our 133-MHz IBM Model 550 test unit contained the pent-up energy of a drifter smoking its sticks at the starting line. The test unit's PowerPC 604 CPU can run the handful of available native applications at speeds that left our custom-built Intel Corp. 68/100-MHz Pentium-based machine running at a distinct second. While

our Intel box had only half the RAM — 16M bytes — that shouldn't have yielded major differences in areas such as word processing performance.

In opening and editing a variety of richly formatted spreadsheet and text documents, we obtained, on average, a 50% performance increase compared with manipulating similar documents under Windows 3.1 versions of the software.

The PowerPC's RISC-based design optimizes floating-point operations. Floating-point processing is prevalent in processing video, audio and graphic operations, and here is where the PowerPC really makes its mark. Graphics ran nearly twice as fast as Windows 3.1 applications. This performance gain was consistent for all of our



graphic handling routines, including font changes, scrolling and photo-morphing segments.

Smooth ride

More modest performance improvements, such as decreased load and save times, resulted from the fast throughput delivered by the test unit's 10-Gbyte integrated drive electronics hard drive, 32K bytes of unified Level 1 cache and its hybrid 32/64-bit architecture.

The need for software emula-

tion is acute for the PowerPC because so few native applications exist.

Our emulation test results varied but gave little to cheer about. DOS-based programs, which were run in Microsoft Corp.'s Windows NT's DOS box, behaved predictably and executed at the same speed of fast-than-they-did-on-a-33/60-MHz Intel i486DX3-based PC.

Windows applications, which ran in standard mode, changed along the same modesty of about the same speed as a 33-MHz i486DX3. Insights Solutions, Inc.'s late 1995/early 1996 upgrade to its Windows 3.1 emulator will let Windows applications run in enhanced mode and should improve overall application performance. But whether it is enough of a boost to matter remains to be seen.

On a somewhat more positive note, the Windows NT environment in the next several months will become a source of application software as vendors recompile their NT applications to run on the PowerPC.

Those who conquer the con-

Test pattern

We tested the PowerPC machine using 32-bit PowerPC versions of Microsoft Word 6.0 and Excel 5.0 and North Coast Software, Inc.'s PhotoMorph. All ran under Windows NT 3.51.

The unit we tested lists for \$1,995 and includes a 17-in., high-resolution monitor with built-in audio, a 10-byte drive; 32M bytes of RAM, and a quadruple-speed internal CD-ROM drive.

We assembled the test unit in minutes, needing the manual only to verify the connections of the monitor's audio and video cameras/jacks. A promised future option, a monitor-mounted \$350 NTSC video camera, is designed for videoconferencing.

—Howard Milman

Lotus tries to put Organizer in order

By Suresh Mahan

Lotus Development Corp. recently announced Organizer 2.1, a maintenance upgrade designed to correct the problems in Version 2.0.

Organizer is a personal information manager that lets users maintain and, in a network environment, share calendaring and scheduling information.

According to users, the latest version comes got a moment too soon.

Absolutely faster?

The most widespread complaint about Organizer 2.0 had been its speed, and Lotus has fixed that problem.

"Speed is a big improvement," said John Sulmeyer, president of Reuthe-Sulmeyer Production, a computer consulting company in Lake Tahoe, Calif.

"It is absolutely faster," said Charles Suisman, publisher of "Macintosh User's Guide," a newsletter in New York. With Version 2.0, Suisman estimated it took him 45 seconds to retrieve information from a very

large file. It now takes him about 15 seconds on his Intel Corp. i486-based computer.

Version 2.0's slowness is attributable to its file format, which is different from the earlier — and faster — Version 1.0. A 256K-byte file in Version 1.x would grow to more than 1M byte in Version 2.0, for example.

"When the file becomes that large, the search engine will become slower," said Kent Soule, principal of Soule Microsystems, a consultancy in San Francisco. Although Version 2.1 keeps the same file format, its speed has improved, but not to that of Version 1.x.

Version 2.1 is also more stable. Version 2.0 crashed fairly often, Suisman and others said.

Other 2.1 enhancements include the following:

- Users can now print weekly

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

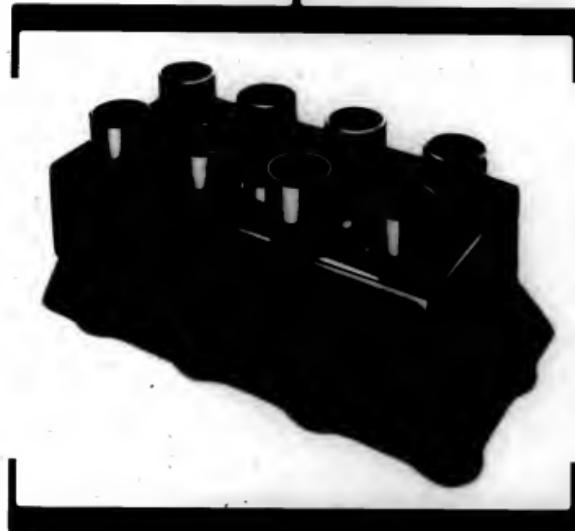
- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

- File compression
- Better administration. For example, Version 2.1 offers a utility menu that lets administra-

and daily pages from the calendar as well as the Notepad's table of contents.

"Building on to my system
shouldn't require a degree in rocket science."



IBM Solution # 78324-P

a.k.a. "Modular SMP"

If you're like most IS gurus, you probably have enough headaches to deal with in the course of your day. Which is precisely why we offer our PC Server 720. With it, you get effortless 1-6 way SMP. Just open, click, snap and you're ready to roll.

- 1-6 way SMP
- Netfinity™ software
- Up to 1GB ECC memory
- 512KB of L2 cache
- SCSI-2 fast and wide



- 7 MCA/PCI slots
- RAID-0, 1, 5 enabled
- 18 hot-swap bays
- Built-in CD-ROM
- Fax 10# 3171

FOR DETAILS ON PC SERVERS, CALL 1 800 772-2227

Offering you the kind of upgrading experience that might better be described as child's play. The PC Server 720. Just one in a continuing series of innovations pioneered by IBM. And one more reason why there is a difference.TM

IBM

Some features of the PC Server 720 may not be necessary. Netfinity is a member of the SystemNet family. IBM and SystemNet are registered trademarks and Netfinity and "There is a difference" are trademarks of International Business Machines Corporation. MegaRAID used with permission Advanced Sys Inc. © Canada Call 1 800 772-2227 IBM Computer

"I want a notebook that computes for both my business and my budget."



IBM Solution #11395-D

aka "The ThinkPad 755C"

With all the cost cutting and dollar squeezing going on these days, we probably don't need to tell you that money doesn't grow on trees. But it can grow on notebooks. Consider the value of the IBM ThinkPad 755C. 16-bit stereo sound. A 10.4" active-

- | | | | | |
|--------------------------------|--|-----------|-----------------------------|-----------------------------------|
| • 486DX4 75MHz | | Processor | Intel® Pentium® Processor | • 256 colors (640x480) |
| • 320MB [†] removable | | Memory | 320 MB Removable Hard Drive | • 16MB internal cache |
| Hard drive | | Disk | 320 MB Removable Hard Drive | • Built-in speaker and microphone |
| • Preloaded | | Software | Windows 95 | • Fax (ID# 1519) |
| Software Suite | | Software | Microsoft Office 97 | |

matrix color screen. A speedy 75MHz processor. Features that ring up a surprisingly low grand total of just \$3,699*. Making every one of your dear pennies count. The ThinkPad 755C. One more reason why there

FOR DETAILS ON THINKPADS, CALL 1 800 772-2227

is a difference.”

Measured productivity: IPC Direct price. Register and Visit May 1995. Minitab® is a trademark of Minitab Inc. SAS and TotalPoint are registered trademarks and "There is a difference" is a trademark of International Business Machines Corporation. In Canada: Call 1-800-463-7999. © 1995 IBM Corporation.

IBM

ANOTHER ADVENTURE IN THE LIFE OF
COMMANDER UNIFACE



THE
MOST ROBUST
AND ADAPTABLE
CLIENT/SERVER
APPLICATION-BUILDING
STRONGWARE IN ALL GALAXY-DOM

BY COMPUWARE



Globs and globs of unmaintainable stuff leaving the entire enterprise to a state of semi-virtual crisis.

...will this be the diabolical work of that evil genius, Moulder or Sternby?

Only Commander Uniface can save the day!

In a wondrous display of wholesome strength, Commander Uniface banishes the sloppily rigid software to the giga-wormhole of Baldaran and forges the system into a workstar of incredible power!



Later, 3,000 parsecs to the east of the quasi-plane of Inferia, Princess Aurorawards Commander Uniface with a gozzy of dimithium crystals and a kiss of cosmic proportions...

while thousands cheer!



Compuware and UNIFACE are registered trademarks of Compuware Corporation. ©1995 Compuware Corporation



Nimbly sideslipping an imploding dwarf colossi, our intrepid hero homes in on the problem...



Hey, dweebs and dweebettes!
If you want to save an entire enterprise from terminal stagnation, call

800 365-3608
or catch us through the "net" at uniface_info@compuware.com

and find out more about Uniface strongware from Compuware.

Nothing—not even a Silurian Silverbeak—adapts to change with such mighty grace.



WHAT THE BIG GUYS USE



COMPUWARE
Uncomplicating your life

FREE
SEMINAR
Learn our products

Sybase Interoperability.

It's how to get client/server without uprooting what you've got.

To get client/server, you could rip out your legacy systems. Or you could choose SYBASE®.

You see, at Sybase, we know your IT system is a significant investment. Which is why you need a solution that not only leverages that investment, but makes it an integral part of your client/server system.

MORE THAN READ-ONLY ACCESS. You need to be able to access, move and manage legacy data across the enterprise. Update it safely. Shift it to the most cost-effective platform. And keep it all synchronized in real time. In other words, you need to be able to use it. Here's how:

INDUSTRY-LEADING PRODUCTS. The Sybase Enterprise CONNECT™ family of products gives you transparent read/write access



THE SYBASE ENTERPRISE
CLIENT/SERVER ARCHITECTURE



INTEROPERABILITY

CUSTOMERS AND ANALYSTS AGREE THAT SYBASE IS THE PROVEN LEADER IN INTEROPERABILITY. AND OVER 700 OF THE FORTUNE 1000 HAVE INTEGRATED THEIR MAINFRAMES WITH SYBASE.

*Call 1-800-SYBASE-1 ext. 7310 today for more information on our "Empowering the Mainframe in Client/Server Computing" seminar. Come hear what Sybase, IBM and leading industry analysts have to say as these semi-monthly meetings starting August 16th at a city near you.

to virtually any data source you want. Just as important, each of our products is pre-certified to work with over 125 front-end tools—tools you're already using.

Because our architecture is so flexible, you can easily integrate yesterday's solutions into how your business works today. And how it will work tomorrow. Giving your company a sustainable business advantage.

SO CALL 1-800-SYBASE-1 EXT. 7310. We'll send you our Enterprise CONNECT Solutions Overview free. Or find us on the Internet at <http://www.sybase.com>.

Because you're making enough changes to your business. Yanking your current investment shouldn't be one of them.

SYBASE
The Architecture for Change



INFORMIX LANDS
APPLICATION SUPPORT
FROM THIRD-PARTY
VENDORS, 4B

Workgroup Computing

LANS • SERVERS • SOFTWARE FOR GROUPS

Vendor	Product	Function	Pricing
Dallas Corp.	SafeStar/PT	RAID-ready SCSI and Fibre Channel storage chassis with hot-swappable drivebay assemblies	\$1,995-\$3,045
Carsen Corp.	Net-		

New RAID chassis eases client/server array configuration

By Steve Moore

The migration of RAID technology from mainframe to client/server environments is not driven only by cheaper RAID arrays these days. Emerging as a key factor are RAID-related products that make it easier for users to configure and reconfigure RAID arrays.

One such product is SafeStar/PT, a RAID chassis from Cubix Corp. in Carson City, Nev. It allows users to create as many as six independent RAID subsystems in one enclosure.

Flexibility is key

Analysts said the PC LAN-oriented product adds configuration flexibility and fault tolerance to RAID arrays.

"SafeStar's originality is its ability to adapt through its backplane to one or several platform environments," said Purid Neema, president of Peripheral Concepts, Inc., a consulting firm in Santa Barbara, Calif.

That is accomplished via a SCSI backplane that holds up to 12 hot-swappable drives and can be configured as one large RAID subsystem or into as many as six independent subsystems.

It is easy for administrators — or even end users — without extensive technical skills to manually reconfigure the array, said Bill Botti, president of Computer Networks, Inc., a value-added reseller in Pleasanton, Calif.

The company focuses on remote office environments.

"If you have six application servers and tomorrow your storage requirements per server go up, you could easily add two more drives per server" by moving SCSI bus connectors, he said. Also, Botti noted, SafeStar/PT "doesn't require a Cubix processor. You could hook it up to a Compaq or Dell system."

Botti also noted that SafeStar/PT "would recognize RAID levels set on the controller and deal with the addition or subtraction" of disks and RAID subsystems. RAID levels specify several data protection techniques that can be used with applications that use storage systems in different ways.

Still competition

While SafeStar/PT is a step forward in client/server RAID flexibility, Neema said, "it is not as powerful as [Hewlett-Packard Co.'s] Auto-RAID," a new technology that automatically migrates data among multiple RAID levels without requiring administrators to deal with RAID's intricacies. (CW, July 31).

SafeStar/PT is available now for \$1,995. Hot-swappable drive/bay assemblies are available in 1-, 2-, or 4-Gbyte capacities at prices of \$995, \$1,795 and \$3,045, respectively.

SCSI and RAID controllers are available separately.

Unix vendors greet GUI with cautious optimism

Long-awaited Common Desktop Environment interface lets users mix and match Unix workstations

By Jean S. Bowman

More than two years after it promised to challenge Windows, the Common Desktop Environment (CDE) — a unified desktop for Unix systems — is finally ready to ship.

The CDE user interface includes a windows manager, applets for electronic mail and calendaring, and a single, user-based graphical user interface. Launched with the Common Open Software Environment (COSE) effort as a unified Unix desktop to compete with Windows, the CDE was developed by Sun Microsystems and certified by the X/Open Co.

The standard allows users to mix and match Unix workstations while maintaining a common look and feel for all screen screens. It has merged with the Open Software Foundation's (OSF) Motif interface, and its future development will be carried out by a vendor-funded GSF task force.

The early promise of a unified Unix desktop as a rival to Microsoft Corp.'s Windows gave way to the reality that CDE is most useful at sites that run many Unix workstations. That is because many Unix sites prefer to use Windows-based PCs, which deliver corporate E-mail and create Windows documents and reports, as clients to corporate Unix servers.

All the major Unix vendors plan to ship CDE, either bundled or as a separate module, this fall. Unisys will also be able to buy it from Tri-Test Corp., a \$5 million firm that helped the COSE vendors integrate CDE code for all Unix systems. Tri-Test will ship its TED 4.0 CDE product, priced at \$425, by mid-August. TED versions will run on IBM's AIX, Hewlett-Packard Co.'s HP-UX, Sun Microsystems, Inc.'s SunOS and Solaris 2.x, Silicon Graphics' Irix and DEC's Digital Equipment Corp. Unix.

Systems vendors are looking for a cue from users and independent software vendors to see whether CDE-compatible applications will really take off. Some vendors, in-

The life of CDE

March 1993

Launched with the Common Open Software Environment effort as a unified Unix desktop to compete with Windows.

October 1993

Common Desktop Environment (CDE) development conference in San Jose, Calif. describes how unified Unix desktop works; early developer's kit is distributed.

April 1994

CDE interface demonstrated at Unisys' 1994 Unix user conference. Soon after, Unix vendors start to work with Unisys to speed CDE to ports.

March 1995

Official CDE 1.0 launch at Unisys' 1995 Unix user conference. Tri-Test prepares CDE versions to ship with current Unix platforms. Vendors port CDE to their site CDE code with their next major operating system releases.

April 1995

The Open Software Foundation (OSF) approves CDE/Motif development project.

May 1995

OSF merges OSF/Motif 1.2.4 with CDE 1.0's Motif 2.0.

June 1995

W/Open announces CDE branding program to ensure specification compliance by vendors. Broadened CDE code set to ship with Unix systems by fall.

Fall 1995

Vendors start shipping W/Open certified CDE code.

cluding IBM, HP, Digital and Novell, Inc., have decided to bundle CDE with future versions of their Unix operating systems. But others, including Sun, are offering CDE only as an option.

"If the user community says this is goodness, then the vendors will respond. Everyone is optimistic but cautious," said Philip Johnson, an analyst at International Data Corp., in Mountain View, Calif. He said large companies could benefit most by being able to replace Unix workstations at will without affecting systems administration.

A ways to go

Yet even those users who stand to gain most from CDE are far from standardizing on it.

"If you've done your homework, you can get much of what you need right now," said David Pensak, principal consultant at Du Pont Co.'s Advanced Computing Technology group in Wilmington, Del. "We set up all the configuration files and scripts to look the same ... [but] CDE makes that a lot easier." The DuPont engineering site has several CDE copies under evaluation and testing.

But CDE's benefits could outweigh any concerns about installing it on Unix workstations that have other interfaces, such as Sun's Open Look or HP's VUE.

"We have one group that supports mixed environments with different types of workstations," said Dan Mairi, manager of computational engineering applications at aircraft engine maker Pratt & Whitney, a division of United Technologies Corp. "That will make life easier [for them] since it will make their workstations look alike."

Potential key user applications for CDE include users that use Unix workstations as personal desktops for financial traders, custom service applications in telecommunications and manufacturing. Industry analysts expect CDE to start gaining acceptance of independent software vendors, which can leverage CDE to write applications once and deploy them on many Unix hardware platforms.

Informix's OnLine lands applications, gets leg up on Oracle

Support from Netscape, BMC among them

By Kim S. Nash
SAN JOSE, CALIF.

Informix Software, Inc. has been criticized for lagging behind its database rivals when it comes to partnering support of third-party application makers.

Oracle Corp. users, for example, can choose among thousands of financial programs, monitoring and management utilities, development tools and other applications built for or ported to the Oracle7 database. Their Informix counterparts, on the other hand, find that application software is more limited [CW, March 30].

But times are changing if the recent Informix User Group show is any indication.

At the show, some 5,000-plus attendees saw announcements supporting Informix's flagship OnLine database from several firms, including BMC Software, Inc. and Netscape Communications Corp.

A change in plans
In fact, Informix's joint development deal with Netscape, whose World Wide Web browser helps users navigate the Internet, was a blow to Oracle. Netscape had planned a series of applications and Web development tools to support Oracle7 but opted for Informix Online instead.

Mare Andreessen, co-founder and vice president of Netscape in Mountain View, Calif., alluded that potential competition from Oracle, which plans its own Internet products, figured into the deal [CW, July 24]. Oracle offers its own tools for building Internet applications that would compete with current and planned products. For example, Netscape will ship a series of similar development tools late this year, Andreessen said.

The type of the information highway aside, Informix and several partners announced products

related to more immediate nitty-gritty database problems.

Informix detailed plans for replication — the copying and synchronizing of databases — much to the relief of some observers who worried that the firm would fall further behind Oracle or Sybase, Inc. in this arena.

Until last month, Informix offered OnLine users only the capability to copy complete databases rather than smaller sections such as tables or rows.

Middleware help
To go beyond that rudimentary function, Informix has enlisted the help of Platina Technology, Inc. and Praxis International. They plan to provide gateways and other middleware projects to replicate information stored in OnLine to and from other databases.

A version of Platina's InfoExpress replicator for Informix is due to ship in the fourth quarter. Prices start at \$15,300, depending on the number and size of hardware processors, according to the Oak Brook, Ill.-based company.

Cambridge, Mass.-based Platina plans to ship its OmniReplicator for Informix at about the same time. Preng was not available, however.

To fill a hole in Informix's New Era development kit — where some users have said a report writer should be — MITI has inserted its SQRS product. The Long Beach, Calif., firm released a class library designed to let developers write SQRS functions into applications they build with the New Era tool.

BMC Software in Houston announced that Patrol 3.0 will support Informix OnLine when the monitoring utility ships this month. Prices start at \$6,000 and depend on the number of consoles and managed objects.



Coming together

Informix users from at least 36 regions worldwide attended a newly created Informix International User Group last month.

Potential members can contact the Fremont, Calif., based group at (510) 464-5116 or 731-9559.

campuswide.com.

Netscape plans to ship its OmniReplicator for Informix at about the same time. Preng was not available, however.

To fill a hole in Informix's New Era development kit — where some users have said a report writer should be — MITI has inserted its SQRS product. The Long Beach, Calif., firm released a class library designed to let developers write SQRS functions into applications they build with the New Era tool.

BMC Software in Houston announced that Patrol 3.0 will support Informix OnLine when the monitoring utility ships this month. Prices start at \$6,000 and depend on the number of consoles and managed objects.

Workgroup Computing

Audio, speech gain in multimedia

By Tim Ouellette

Although multimedia has been around for a while, audio and speech features are gaining importance in multimedia applications. Now, developers are looking for ways to mold this media.

VoxWare, Inc. in Skillman, N.J., for example, is providing a suite of speech-related tools for multimedia applications. Called ToolVox, the suite could improve business presentations and training programs.

Sounding like something from *Star Trek*, ToolVox, with prices starting at \$895, lets users compress, warp, morph and resynch speech.

Sam Sheddan, a senior authoring systems engineer at The Learning Co. in Knoxville, Tenn., and he uses the Warp tool in the suite to adjust the playback of native language recordings for the company's foreign language instruction software products.

"For us, text in video for showing the native speaker's expression, sound is the most important element," Sheddan said. "The biggest difficulty for users is that the native language is

often spoken very fast. So we record the native speakers, and without losing any voice quality, we bring it down to a manageable, workable level."

While other developers provide somewhat similar warping features, VoxWare's MorphIt tool is unique, said Will Strauss, an analyst at Forward Concepts in Tempe, Ariz.

"You can take a template of sound and when you speak [or run a tape of speech] you can sound like that voice," Strauss explained. "It is like taking a tape of John Wayne and making yourself sound like that."

Saving money and time
Tools such as these help developers save money and time when creating training or presentation materials because they can do many things with one recording and tailor it to users' needs.

Steve Barlow, director of Lotus Development Corp.'s multimedia group, said the combination of screen action and sound in training applications is very powerful and more intelligible for users. He added that sound alone isn't as effective because it often imitates functions already performed by the telephone.

Internet link, Windows added to mobile sales system

By Mindy Hodges

Systems Data Support (DSS) last week rolled out the latest version of its Sales Information Response System (SIRS), adding several features meant to make life easier for mobile users.

SIRS 7.0 now supports Microsoft Corp.'s Windows 3.0 and Windows 95; it also gains internet connectivity and a sales opportunity management system.

One SIRS user, Steve Jackson, director of marketing information systems at Dearborn Financial Publishing, Inc. in Chicago, said he is considering upgrading to SIRS 7.0. He is interested in its new data access capabilities, which could help the company's field service representatives.

Working together

"We need to get these folks on the same database," Jackson said. "We have different field service representatives calling on the same account, and so we could really use more ability to have everybody, both inside and outside the office, working on the same information."

Judy Hodges, an analyst

at International Data Corp. in Framingham, Mass., said the additional features in SIRS 7.0 "push DSS up into the higher tier of sales force automation players such as" Brock Control Systems, Inc.

However, she said the software lacks one key ingredient: the customer support system piece. It was designed to manage and track a help desk facility but will not be included in the package right away due to a last-minute problem DSS had with a partner.

"That prevents it from being a true suite," Hodges said. DSS said the customer support feature will be available within 90 days.

Pricing, features

The software is available now. Pricing ranges from \$1,000 to \$2,750, depending on how many modules are purchased. The modules, which can be bought separately or in combination, offer such features as telemarketing and data warehousing.

The software also offers remote host communications and an open architecture compatible with several operating systems and databases, including ones from Oracle Corp., Sybase, Inc. and Informix Software, Inc.

Features of Sales Information Response System 7.0

- Client/server system based on object-oriented technologies.
- Internet connectivity.
- Support for Windows 3.1 and Windows 95.
- Host-based communications server enabling mobile users to access enterprise data more quickly.
- Data warehousing capabilities.

White Paper



Navigating around the Client/Server Iceberg

Business Requirements for Corporate-Wide Client/Server Applications

WHAT IS THE MARK OF A TRULY POWERFUL ENTERPRISE?



When it comes to developing and deploying enterprise-class, client/server applications, PROGRESS is the proven leader. And now, there's a way to make sure PROGRESS-based applications are driving your business. The POWERED BY PROGRESS™ logo. Look for it on over 2,000 packaged applications currently based in PROGRESS, and on PROGRESS development tools that let you build your own enterprise-class, client/server applications. For additional information, give us a call at 1-800-989-3773 ext. 167, or simply visit us on the World Wide Web at <http://www.progress.com>.

PROGRESS
SOFTWARE

©1995 Progress is a registered trademark of Progress Software Corporation. Powered By PROGRESS and Powered By Progress logos are trademarks of Progress Software Corporation.

Introduction.



Navigating Around the Client/Server Iceberg:

Business Requirements for Corporate-Wide Client/Server Applications

Over the past five years, organizations have begun to use client/server tools running on desktops to quickly develop department-wide applications.

Increasingly, however, organizations are discovering that these tools don't work for large-scale, corporate-wide applications. These applications require tools that are as easy to use as first-generation client/server tools and are robust enough to handle the complex and performance requirements of enterprise applications.

In other words, organizations are running into a "client/server iceberg." Just what does this phrase mean? In migrating from host-based applications to client/server applications, organizations have focused on prototyping applications and have not spent much time analyzing their business, technical and infrastructure requirements. And based on that as-

sumption, application developers have been using first-generation tools to deal with the tip of the client/server iceberg: the user interface and simple logic requirements of first-generation client/server applications.

But developers using these tools have begun to encounter requirements "below the water line." These are the same requirements that developers would have run into were they developing host-based applications: the ability to handle increasing levels of complexity, scalability to support increasing numbers of users, transaction control, and so on.

Next-generation or enterprise client/server tools address these "below the water line" (see Fig. 1) requirements and enable organizations to effectively deal with the client/server iceberg. This White Paper will examine the evolving requirements for next-generation client/server application development and deployment.

The Hurwitz Consulting Group, Inc. (HCG) is a technology, consulting and publishing company in Newton, Mass., specializing in the emerging market for client/server applications development and cross-platform infrastructures. HCG was founded to focus exclusively on client/server and cross-platform technology. Judith Hurwitz, president and founder, is a leading industry authority with extensive experience as an IS professional, consultant, analyst, and writer in the computer industry.



WAITING FOR THE COWS TO COME HOME?



MFG/PRO® integrated business software is available in **23 languages** concurrently and implemented in more than **60 countries**.

If getting your implementation up and running seems to be taking forever — stop wasting time and let us show you how **MFG/PRO®** can dramatically improve your **Time-to-Benefit**. QAD's enterprise-wide solution is fast to implement and easy to use and maintain. Moreover, because of its **flexible** and **scalable** architecture, your investment in MFG/PRO is enhanced over time as it provides a sound path for future growth. MFG/PRO and its **Global Supply Chain Management** approach gives you the tools necessary to increase profitability and gain a distinct competitive advantage.

qad.inc

Look for us on the World Wide Web at
<http://www.qad.com/>

QAD Global Marketing, 6450 Via Real, Carpinteria, California USA 93013 Telephone 805 565 9404

The Changing Face of Client/Server Development

The first generation of client/server application development tools marketed over the past five years offered graphical rapid application development (RAD) on PCs. Developers and business professionals using these tools focus on what they see on the screen rather than on the complexity underneath. And because the GUIs of these tools are quite sophisticated, developers assume that the tools are also sophisticated enough to handle other aspects of the application, such as complex business logic and data management.

Unfortunately, this assumption is invalid. The sophistication of a first-generation tool's GUI represents only the tip of the iceberg; that sophistication does not extend below the water line.

Developers have found this out the hard way. If they try to make a first-generation tool handle the requirements of increased-scale applications, they usually have to program in one or more third-gen-

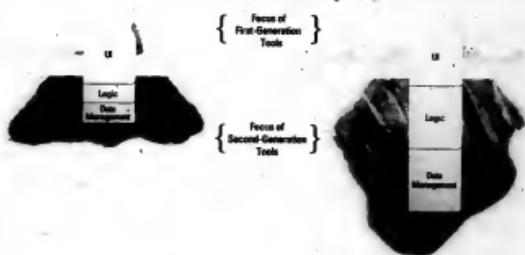
eration languages (3GLs) such as Cobol, C or C++.

Also, most first-generation tools tightly integrate user interface code with application logic, requiring that all the logic reside on the client. If that logic involves data access, the scalability that would be provided by moving that logic to the server becomes almost impossible. This integration also forces all data to be moved across the network between client and server, resulting in a network bottleneck.

Finally, because they require the use of proprietary SQL extensions and languages, first-generation tools force the creation of applications in which the data management logic is tied to a single database; if the application needs to access another database, the developer must modify the application logic. Using a first-generation tool inhibits an application from growing in complexity because of the lack of modularity and the difficulty of adding complex programming logic (see Fig. 2).

The maturation of the application development

The Client/Server Iceberg



Creating a New Information Management System at United Technologies Automotive

United Technologies Automotive (UTA), in Dearborn, Mich., is a major developer and manufacturer of systems and components for the global automotive industry. Its five business units generated revenues of \$2.7 billion in 1994 and its products are part of nearly every passenger vehicle built in North America and Europe.

Over time, with increased growth, the mainframe-based system used by UTA's Ispat Controls business gradually became less effective in meeting business needs, from both performance and cost standpoints. The unit, which manufactures electronic controls and switches, also faced increasing pressure from OEMs to improve data accuracy and implement new control processes.

"Because we lacked an integrated system, accessing data was often difficult, and making changes or improvements was very time-consuming," said Randy Seveil, manager of systems and process management at UTA.

"We were using manual processes that were inefficient in view of the large volume of data generated. Plus, the manufacturing operation was not integrated with finance, so it was hard to produce timely reports. There were even things we could not do, including some OEM-driven projects. It was frustrating for everyone and potentially damaging to our customer relationships."

After a reorganization of the central IS function at UTA gave the busi-

ness units a mandate to determine their own IS systems, the door opened for a comprehensive business assessment. As a result, Ispat Controls decided to transition to a client/server architecture for cost savings and flexibility. "We called this effort Project Genesis because we laid the foundation for a new approach to managing business information," said Seveil.

After a rigorous software evaluation, Seveil and his team selected MFG/PRO, an integrated manufacturing and financial package from QAD Inc., in Carpenteria, Calif. "We were attracted to MFG/PRO because it's based on the PROGRESS Application Development Environment from Progress Software," said Seveil. "Another factor was QAO's experience in the automotive market."

Databases Consolidated

Under the MFG/PRO application package, UTA has consolidated its four databases, enabling staff at any of the division's sites to obtain information more easily and largely eliminating duplicate data entry. A key benefit is the implementation of a single bill of material system for the entire unit. In addition, when fully operational throughout Ispat Controls, the new system is expected to significantly reduce development and maintenance costs associated with the mainframe, resulting in projected savings of \$1 million per year.



Other UTA business units have selected the success of Project Genesis; in fact, the Motors unit has also selected QAO's application package.

The system is configured with HP 9000 servers running Novell NetWare and Windows-based clients networked with TCP/IP. Day-to-day applications run on client/server. A few functions remain host-based due to processing requirements.

After a successful pilot installation in Tampa, Fla., Seveil's team has moved ahead with the implementation process. They are also doing custom development with PROGRESS to enhance aspects of the MFG/PRO product. "We're not changing source code, just building on the core application," said Seveil. "We've been pleased with the PROGRESS toolset."

According to Seveil, implementation of the system has had a positive effect on the entire Ispat Controls organization. "Project Genesis has served as a catalyst, opening up discussions about long-term information management issues."

"With the help of QAO and Progress Software, we are establishing the infrastructure we need for a more efficient and cost-effective operation."

ENTERPRISE-WIDE CLIENT/SERVER APPLICATION DEVELOPMENT

White Paper

marketplace has resulted in a second generation of client/server development tools that not only accommodate increasing levels of complexity, but also result in increased programmer productivity across the user interface, logic and data management.

These tools also include sophisticated services to handle the development process, which typically involves teams of developers. Also, the tools' deployment capabilities accommodate a range of cross-platform enablers at the interface, middleware and networking levels.

To move corporate-wide development from the mainframe to client/server requires the same tools and capabilities that were an integral part of best development. These tools have recently begun to appear on the market to help organizations in their migration to corporate-wide client/server application development.

Future Client/Server Requirements

When selecting second-generation tools for large-scale application development, organizations need to consider their development capabilities, deployment capabilities, and the flexibility of the tool to adapt to changes over time.

For example, development tools used to build corporate-wide applications must support complexities across the user interface, logic and data components of the application. In terms of deployment, the tools must be able to handle the issues presented by multiple computing platforms, increasing numbers of users, and multiple databases.

The tool must also provide flexibility over time. Products, services and business units continually evolve; development and deployment environments must mirror and support these changes. Today's departmental application may evolve into an enterprise-wide application tomorrow. One large department may be divided into two business units and become geographically split, possibly internationally. Second-generation client/server development environments are designed to handle such changes.

The next sections in this White Paper will examine the development, deployment and flexibility re-

quirements that you should consider when choosing a second-generation client/server tool — one that will help you address the entire client/server iceberg.

Tool Requirements

When selecting a development tool for building a corporate-wide client/server application, you should consider at least three factors: the scale of the application, the overall requirements for the development tool, and the specific requirements across the user interface, logic and data components of the application.

Scale of the Application

There are many common elements for application development. There are also a variety of business tasks and requirements, which dictates that developers select different approaches and implement them using different tools.

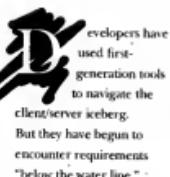
Some companies have primarily small projects that only last a short time. For example, a company offering a one-time special product for sale with a partner would only need an application that could process a small number of orders or informational requests. Once the project is over, the application would go away. It is "disposableware."

In another company, an individual department might need to access key corporate data through a more flexible GUI. In both instances, a RAD approach with first-generation development tools is suitable to get the job done quickly and efficiently. In this situation, a high-end tool would be overkill.

Even in the context of scenarios such as these, developers should proceed with caution. Many applications are originally approached as "disposable", only to become required for longer than planned, sometimes even becoming critical to the enterprise. It is a good idea to examine the enterprise implications of an application, even if at first it seems to be one easily handled by first-generation tools.

Many organizations also want and need sophisticated and widely used applications. These applications handle complex parts of a company's business, and need to be architected for longevity.

"At this stage, no one may know how much more



Developers have used first-generation tools to navigate the client/server iceberg. But they have begun to encounter requirements "below the water line."

complex the business will become over time. Many business issues could drive significant changes in the infrastructure: a move into new channels, a merger or an acquisition, or even the forming of new partnerships. The company may double or triple if business expands, or the organizational structure itself may be in flux due to right-sizing initiatives.

An organization may be in the process of distributing responsibility for different aspects of the business to business units around the globe. To further complicate things, the company may, at a later point, decide to return to a more centralized management structure. In this case, an organization should combine extensive planning with second-generation client/server technology to develop the types of applications to meet its changing needs.

Large-Scale Development Tool Requirements

Development tools used for large-scale application development should be comprehensive and adaptive.

- * **Comprehensive.** The development environment should address the entire application life cycle of design, development and deployment. Within each area, the environment should allow the developer to use a single skill set, (see Fig. 2) rather than forcing the developer to work with a variety of products that may not work well together in the future.

For example, the development environment should provide a single set of tools for dealing with an application's user interface logic and data management components. And if the developer needs to use other vendors' tools to deal with design and deployment, the environment should provide easy access to those tools by adhering to standards.

- * **Adaptive.** An adaptive development environment has the flexibility to evolve as the business changes. It can also accommodate changes in user interface, databases, networks and operating systems.

An adaptive environment also abstracts or hides the underlying complexity of the infrastructure so that development organizations can focus on the business problem, rather than the underlying technologies that are subject to change.

Large-Scale Development Environments

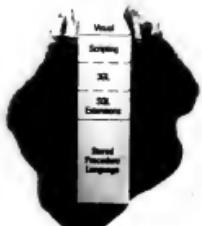
A client/server development environment must address the components present in any application: user interface, business logic and data management. The next sections in this White Paper will explore requirements in each of these three areas.

User Interface

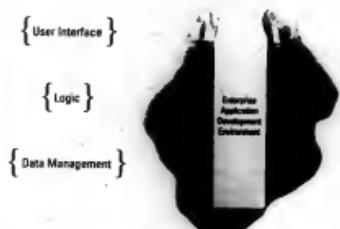
The presentation services, or user interface, is the portion of an application that manages the way the

Integrated Enterprise Application Development

First Generation



Second Generation



Government Deregulation Propels Switch to Client/Server for Distributor Bay State Gas

For utility companies such as Bay State Gas, the largest independent distributor of natural gas in New England, government deregulation has meant two things:

- 1) increased competition, and
- 2) the accompanying need for new marketing approaches.

During the period in which Bay State Gas was in the process of formulating its strategic planning, it became apparent to the utility that its existing mainframe-based COBOL applications could not accommodate the increased level and broader range of services demanded by a deregulated market.

In comparison, Bay State Gas realized that implementing a client/server system would give it, at a minimum, several competitive advantages: to respond faster to new market opportunities, to effectively manage a larger portfolio of services, and to provide more functionality and flexibility.

Not surprisingly, Bay State Gas made the decision to transition from its aging mainframe computing system to a more responsive, more flexible and more cost-effective client/server environment.

Robert 4GL

After reviewing several possible solutions, the company selected the PROGRESS Application Development Environment (ADE), from Progress Software. The primary criterion for its choice of PROGRESS was the robust-

ness of the product's 4GL. PROGRESS offered Bay State Gas the ability to handle all three levels of an application — user interface, business logic and data manipulation — without creating the need for its developers to either drop down to a less-productive 3GL or to write database-specific SQL code.

Implementation of PROGRESS development was accomplished on an incremental basis, beginning with a pilot program on the meter-inventory application.

According to John Deuceta, vice president of corporate services at Bay State Gas, "The PROGRESS ADE and relational database enabled us to build an integrated application that eliminated the redundancy and complexity that characterized our existing application."

Other advantages that Bay State Gas found in using PROGRESS included rapid development and training, as well as lower costs.

Following the success of this pilot effort, Bay State also chose PROGRESS to develop an entire new customer information system. In this instance, the GUI-based capability of PROGRESS Version 7 was a deciding factor.

The new customer information system, which will run on HP 9000 series computers, is designed to streamline customer service by simplifying the process of navigating between applications. Thanks to a simplified user interface, representa-



tives will be able to learn all applications — rather than just one — and provide "one-stop shopping" to customers.

When the new system becomes fully operational this fall, 400 end users conducting over 20,000 daily interactions with customers will use

"The PROGRESS Application Development Environment and relational database enabled us to build an integrated application that eliminated the redundancy and complexity that characterized our existing application."

John Deuceta,
Vice President of Corporate Services
Bay State Gas

PROGRESS-based applications for the company's core business functions.

Deuceta conceded, "At Bay State Gas, we committed to re-engineering and rewriting our entire homegrown mainframe portfolio in a little over a year.

Forty-three offices in
seventeen different countries
all demand your attention.

What computer system
do you have?

As the world's leading UNIX® vendor,
we've helped provide solutions to
thousands of companies around the globe.
If the business decisions are yours,
the computer system should be ours.



Comments Systems



user interfaces with the application. Although developers may spend a lot of time on this portion, it typically represents only 15% to 50% of the total development effort for that application. First-generation tools that focus on the user interface are only addressing the tip of the client/server iceberg.

The most critical aspect of user interface development is to ensure that the visual components of the development process are separable from logic and data. Second-generation client/server tools not only provide for this separation, but also address key aspects of the visual environment, including

- * reusable user interface objects
- * support for cross-platform development
- * support for multiple programming models
- * internationalization

When evaluating tools, organizations should examine capabilities in each of these four areas:

User Interface Objects. Most tools today offer good graphical development environments. But in selecting a tool, developers must not confuse graphical development environments with object orientation.

Being able to create code or an object using a graphical tool does not mean that code or object can be reused in another application or in another setting without recoding.

An object-oriented development environment allows developers to take advantage of pre-designed object components that have been built by commercial developers. Reusable user interface objects also offer organizations the ability to set standards across an organization, ensuring consistency and a common look and feel across applications... ultimately, resulting in improved productivity for end users.

Reusable user interface components will greatly enhance productivity because they have already been debugged and tested. Examples of reusable commercial products include pre-defined application templates designed to shortcut key aspects of complex development and custom controls designed for the Windows environment.

Cross-platform support. Over the past five years, developers and end users have moved from purely a character-based interface to a mixture of character-based and graphical user interfaces. Some developers are using a graphical environment such as Win-

dows to build an application. However, the end users still have character terminals on their desks.

Large-scale applications require the development tool to be able to produce applications that can run



It is always a good idea to examine the enterprise implications of an application, even if at first it seems to be one that is easily handled by first-generation tools.

consistently across these user interface environments. A development tool with a "multi-layout" capability lets developers see what the application will look like in both character and graphical environments. The tool should let a developer build the application using one user interface environment, such as Windows, and deploy that application to a user who has a character-based interface.

Programming models. In reality, businesses are driven by both events and procedures. Yet the truth is, most popular development tools are implemented assuming only a procedural model of development.

As organizations begin defining business events in addition to business procedures, it becomes increasingly important for a development tool to be able to easily handle both event-driven and procedural programming models. Hurwitz Consulting Group anticipates that this step will go a long way toward helping organizations build more effective applications.

Internationalization. As more corporations expand beyond their local borders, they must provide applications with screens, reports and messages in native languages. Tools that allow developers to develop a single version of an application that handles multiple languages can dramatically impact the effectiveness and timing of global applications.

Applications developed with these tools should be able to simultaneously "understand" different languages and character sets input by different users.

Application Logic

Application logic is the heart of client/server application development and represents the bulk of

ENTERPRISE-WIDE CLIENT/SERVER APPLICATION DEVELOPMENT

White Paper

the work for application developers. When evaluating tools for large-scale application development, an organization should consider the following in terms of application logic capabilities:

- modularity of design to handle complexity
- role of transactions
- object orientation
- integration with outside technologies
- database and platform independence
- the role of batch processing in client/server

Modularity. A development tool should not intertwine user interface logic with application logic, especially if scalability is an issue. Also, just because an application was designed with a second-generation client/server tool does not mean it was designed to handle increasing degrees of complexity.

Scalability comes from well-thought-out and well-structured techniques. The development tool you choose should foster the modular development of application logic, producing objects that are reusable and applications that can easily handle increasing complexity.

Role of transactions. First-generation tools have typically been used to develop either decision support applications or applications involving simple transactions or light transaction loads. Large-scale applications bring not only increased transaction complexity, but also the requirement for increased transaction loads.

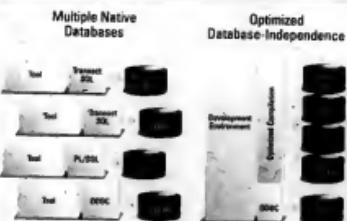
A development tool should provide a structured, transaction-oriented language, which will allow developers to address the transaction requirements of large-scale applications without having to resort to conventional, low-level programming languages.

Object orientation. Object orientation in second-generation client/server environments helps mask the complexity of the underlying enterprise infrastructure and provides the benefit of reuse, significantly increasing developer productivity. In fact, organizations building large-scale applications are finding they need to design reusable libraries for use by large development teams. These reusable libraries can capture important complex business logic, reducing the chance that developers will introduce logic errors. Reuse can also dramatically speed up the development process, especially when a large-scale, complex application is being designed.

An object framework such as OLE/COM or CORBA can allow a variety of conventional and object-oriented code to be managed in a distributed way. This type of object brokering service hides the complexity of underlying technologies so developers do not need to know the details of it and can focus on the application. It also makes it easier to change environmental components without having to change the application logic.

Integration with outside technologies. For large-scale applications to be implemented at the corporate level, they must not be approached as isolated business functions. Instead, they must be able to interact with an organization's other applications and data. Furthermore, the development tool used to create these applications should provide this capability without forcing the developer to drop into C or some other low-level language.

Database and platform independence. Pilot or departmental applications often need to deal with only



one database or platform. But large-scale applications must often be able to seamlessly access multiple, and possibly heterogeneous databases as well as be able to run across multiple operating systems.

For example, corporate-wide client/server applications often need to access and update legacy data as well as newer heterogeneous data sources across the enterprise. This data is found on a variety of flat files, hierarchical mainframe systems and relational databases running on many hardware platforms.

Therefore, when selecting second-generation client/server tools, it is important to evaluate their abilities in these areas. A second-generation client/server tool must allow the developer to develop a single set of logic that will work across multiple databases and/or operating system platforms.

Role of batch processing. An often overlooked aspect of corporate application development is sup-



plications must be able to scale both up and down in platforms, number of users, size of database and application complexity. *

port for batch processing. Even in an event-driven client/server world, there are requirements for batch reporting and processing.

For example, large financial consolidation reports should be run off-line. A second-generation client/server tool should be able to handle batch processing and should also let a developer address this part of the application using the same skill set required to build all the other parts of the application.

Data Management

In terms of data management, the development of large-scale applications dictates the need for a consistent repository for data definitions and business rules. This repository should be seamlessly integrated into the development tool, to ensure maximum developer productivity. Make sure that the development tool you choose provides such a repository.

Further, as part of the overall modular architecture of client/server, data should be separate from application logic and business rules. This separation allows data to change without affecting the integrity of the application.

When data is integrated with application logic, the entire application must be tediously changed and modified each time a data element changes. Separation of data from application logic provides a faster way to maintain and change applications.

Pilot or departmental applications typically need to access only a single data source. Large-scale applications, however, often involve transactions that

span multiple heterogeneous data sources. Because this requirement is below the water line of the client/server iceberg, first-generation client/server tools cannot address it without significant low-level language coding on the part of the developer.

In contrast, effective second-generation client/server tools handle this challenge by providing optimized database independence that does not rely on embedding RDBMS-specific SQL or a "lowest common denominator" approach, such as ODBC. (See Fig. 3.)

Deploying Large-Scale Client/Server Applications

It is not enough that a second-generation client/server tool can handle the development requirements of a large-scale application; you must also consider the deployment requirements presented by this class of application. You must consider:

- Portability across environments and platforms
- Scalability and support for users
- Flexibility in responding to changing user needs or business conditions

Portability. When organizations started moving from the mainframe as the only development platform for applications, they purchased a variety of platforms, ranging from desktop development systems to large-scale minicomputers and servers.

Client/server applications that support all these users must accommodate a variety of hardware options, networks, operating systems, databases and communications protocols. The development environment must be architected to hide, or make transparent, the underlying physical environment, so deployment can be accomplished as easily on a LAN as in a large-scale server environment. (See Fig. 4.)

Scalability. Scalability in deployment has different implications than scalability of development. A company that needs to support thousands of users at its main site may only need to support a handful of users at a regional site. Therefore, in deployment, applications must be able to scale both up and down in terms of platforms, number of users, size of database and application complexity. It is not unusual for one organization to have many situations. The development environment must handle a wide variety of implementation and deployment situations.

Flexibility. Although pilot or departmental appli-

ENTERPRISE-WIDE CLIENT/SERVER APPLICATION DEVELOPMENT

White Paper

cations often have clear requirements, large-scale applications must anticipate change in a number of areas. Tools used to build these applications must be able to respond to these changes without requiring developers to change the application.

Changes typically required by large-scale applications include end user ad hoc reporting, the ability to support new and different types of databases, and the internationalization of an application.

Conclusion: Navigating Around the Iceberg

All applications have development, deployment and flexibility requirements. And when organizations build pilot or departmental applications, it is often appropriate for them to use first-generation client/server tools to address those requirements.

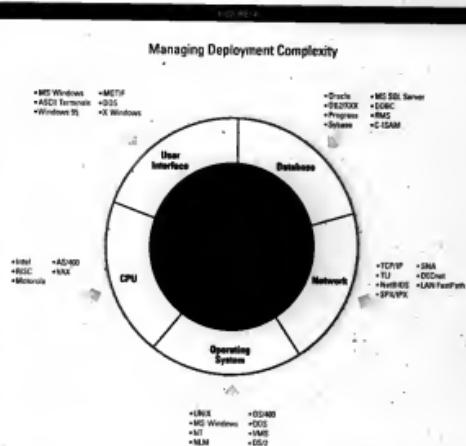
However, these tools do not address the requirements below the client/server iceberg water line. It is these requirements that developers face when build-

ing large-scale applications. Therefore, before selecting a tool, it is critical to think about how an application's requirements will change over time.

Corporate-wide client/server computing provides the infrastructure that begins to allow organizations to evolve in a flexible way without the massive disruptions of earlier computing architectures.

Second-generation client/server development and deployment environments are architected with the assumption that businesses — and the applications that run them — will change constantly. They are being designed to provide organizations with highly flexible, distributed and managed environments.

Understanding the requirements of large-scale applications and then choosing the appropriate second-generation client/server development tool are the keys to navigating around the client/server iceberg. Be sure to look below the water line before you choose an application development tool. ■



For
information on
Progress Seminars
call: 1-800-989-3773

THE INTERNATIONAL
SYMBOL FOR
"SUPERIOR SOFTWARE."



When it comes to developing and deploying enterprise-class, client/server applications, PROGRESS is the proven leader. And now, there's a way to make sure PROGRESS-based applications are driving your business. The POWERED BY PROGRESS™ logo. Look for it on over 2,000 packaged applications currently based in PROGRESS, and on PROGRESS development tools that let you build your own enterprise-class, client/server applications. For additional information, give us a call at 1-800-989-3773 ext. 168, or simply visit us on the World Wide Web at <http://www.progress.com>.

PROGRESS
SOFTWARE

©1995 Progress is a registered trademark of Progress Software Corporation. Powered By PROGRESS and Progress By Progress logo/pattern are trademarks of Progress Software Corporation.

Workgroup Computing

Crystal Computer Services, Inc. has announced Crystal Reports 4.5, a 32-bit version of its data access and reporting tool for PC and client/server environments.

According to the Vancouver company, Crystal Reports 4.5 features enhanced graphing with customizable graph types and import and export capabilities for ODBC. It also supports Microsoft Corp.'s Access 2.0 OLE picture fields and Borland International, Inc.'s Database Engine. It can export to Microsoft's Excel 4.0.

Crystal Reports 4.5 runs on Windows platforms, including Windows NT, Windows 3.1 and Windows 95.

Crystal Reports 4.5 costs \$195.
► Crystal Computer Services
 (604) 651-3435

Alpharel, Inc. has announced the latest release of its suite of enterprise image manipulation tools: View, Markup and Edit.

According to the San Diego company, the latest release has a pan-zoom viewing effect that allows operators to set individual pan-zoom locations for all documents. Other new features include improved measurement units, support for multipage TIFF files, set markers, tool tips, flexible measurement tools and faster edit/crop capabilities for resizing.

The tools also support True Type fonts in Windows and Speedo Outline fonts on Unix.

Pricing for View tools starts at \$650; Markup tools start at \$650; and Edit tools start at \$1,350. Price reductions are available for quantity purchases.

► Alpharel
 (619) 625-3000

Blueridge Technologies, Inc. has announced that its Optix Network Document Management System now supports SPARC-based servers from Sun Microsystems, Inc. running the Solaris operating system.

According to the Flint Hill, Va., company, the document management system offers workflow, imaging, archival/retrieval and natural language text search for Macintosh and Windows-based clients. The system can be scaled from an entry-level SPARC to an enterprise-wide application running on a Sun SPARC-server with multiple processors.

Pricing for the Optix Network Document Management System (with Sun SPARC server) starts at \$150,000 and includes Optix server software, client software for both Macintosh and Windows-based PCs and installation.

► Blueridge Technologies
 (703) 675-3016

Pacific Data Products, Inc. has introduced the Pacific DirectNet print server.

The Pacific DirectNet print server supports the Dynamic Host Configuration Protocol (DHCP) for Microsoft Corp.'s Windows NT networks. According to the

San Diego company, DHCP support provides a single configuration protocol for all network devices and lets users on a Windows NT network print to any network printer via the TCP/IP protocol.

Pacific DirectNet print servers feature multilayer compatibility, SNMP support and flexible setup configurations.

Pricing for the Pacific DirectNet print server starts at \$195.
► Pacific Data Products
 (619) 651-0580

Executive Technologies, Inc. has announced SearchExpress/Legal Document Imaging 3.6.

According to the Birmingham, Ala., company, SearchExpress/Legal Document Imaging 3.6 performs optical character recognition (OCR) on scanned legal documents and lets users perform searches across multiple cases. It also lets users perform redacting, Bates stamping and automatic archiving. It allows attorneys to white out portions of a

page before printing the page or giving it to opposing counsel.

The product features fuzzy logic searching to find documents despite OCR errors and ranks the retrieved documents by presumed relevance, concept searching and boolean searching.

SearchExpress/Legal Document Imaging 3.6 costs \$5,995 per server and \$495 per concurrent network user.

► Executive Technologies
 (205) 933-5494



IT'S NOT HOW MUCH YOU READ.

You can read a knee-high stack of computer magazines each month and still not find the depth and breadth of news and information you'll discover each week in the pages of *Computerworld*.

As the only weekly newspaper for IS professionals, *Computerworld* is filled with up-to-the-minute articles on topics ranging from products and people to trends and technology. We cover it all — PCs, workstations, mainframes, client/server computing, networking, communications, open systems, languages, industry news, and more.

It's everything you need to know to get an edge on the competition.

That's why over 140,000 IS professionals pay to subscribe to *Computerworld* every week. Shouldn't you?



IT'S WHAT YOU READ.

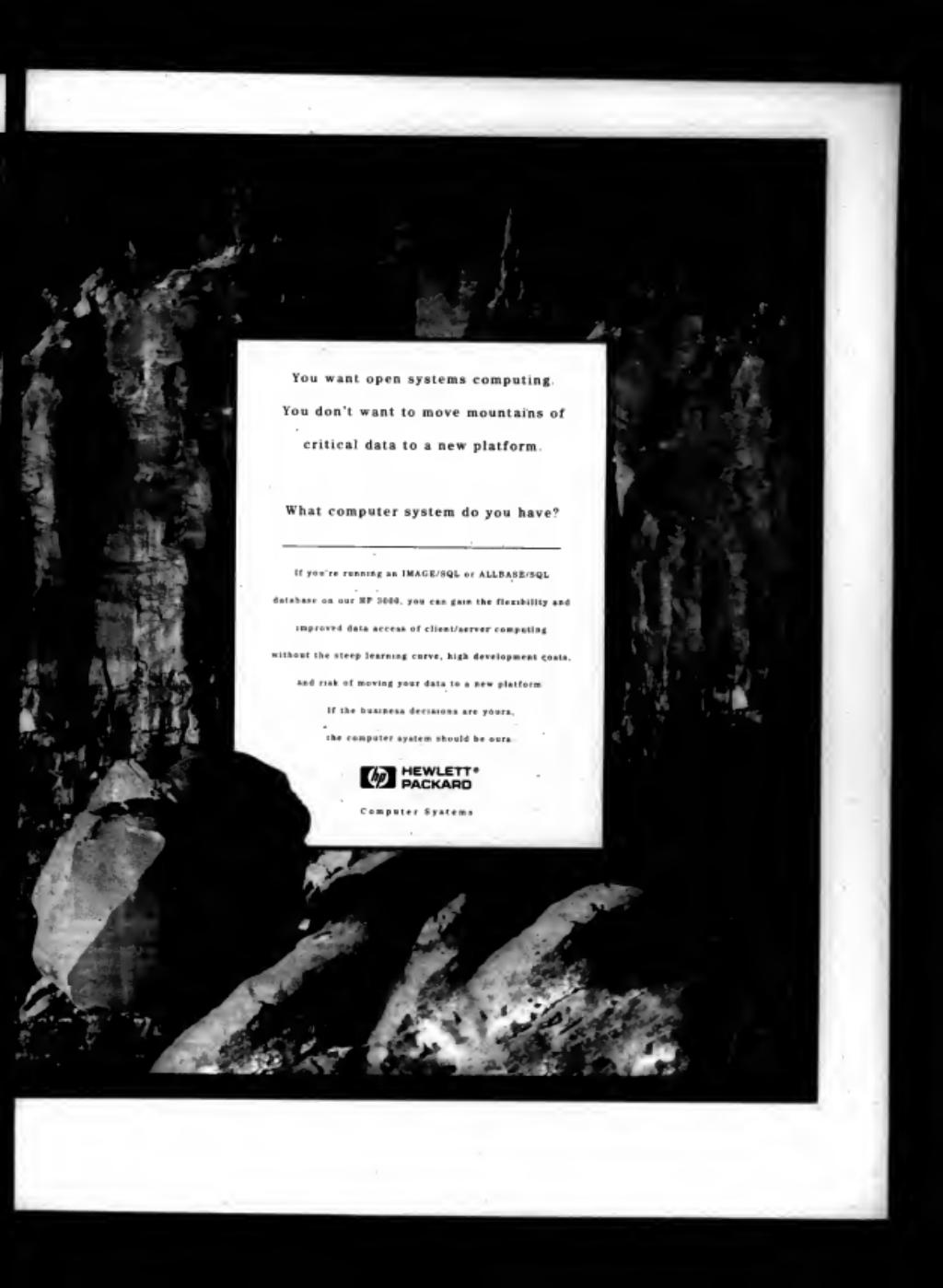
Order *Computerworld* and you'll receive 51 information-packed issues. Plus, you'll receive our special bonus publication, *The Premier 100*, an annual profile of the leading companies using information systems technology.

Call us toll-free at 1-800-343-6474. Or use the postage-paid subscription card bound into this issue. And get your own copy of *Computerworld*.

Then you can spend less time reading about the world of information systems. And more time conquering it.

The Newspaper of IS





You want open systems computing.
You don't want to move mountains of
critical data to a new platform.

What computer system do you have?

If you're running an IMAGE/SQL or ALLBASE/SQL database on our HP 3000, you can gain the flexibility and improved data access of client/server computing without the steep learning curve, high development costs, and risk of moving your data to a new platform.

If the business decisions are yours,
the computer system should be ours.



Computer Systems

If you want to
send a message to
a customer on a
different operating
system, you have
two options.



Get cc:Mail.
Or get a stamp.

With all due respect to the post office, there are more efficient ways of communicating in business. E-mail is a perfect example. Thing is, there's only one e-mail package available that allows you to simply communicate with anyone you want—colleagues, customers, vendors—no matter what operating system (Windows™ DOS, OS/2®, Macintosh® or UNIX®), host system or e-mail product they use: cc:Mail™ from Lotus.*

In addition, cc:Mail works seamlessly with other Lotus applications like Lotus Notes® and SmartSuite® and is compatible with virtually all other mail-enabled desktop applications, including those from

Microsoft® and WordPerfect®. In short, whatever you have, and whatever they have, cc:Mail works. Easily.

It's no wonder cc:Mail is the best-selling e-mail



package, used by more people worldwide than any other. It's no wonder Lotus users work better because they work together. It's no wonder we want you to have more information about cc:Mail. Call 1-800-872-3387*, EXT. A934,



to learn more or explore Lotus on the World Wide Web at www.lotus.com.

*In Canada call 1-800-420-4200. ©1991 Lotus Development Corporation. 11 Cambridge Park Drive, Cambridge, MA 01432. Lotus, SmartSuite, Notes and Working Together are registered trademarks and cc:Mail is a trademark of Lotus Development Corporation. Microsoft is a registered trademark and Windows is a trademark of Microsoft Corporation. OS/2 is a registered trademark of International Business Machines Corporation. Macintosh is a registered trademark of Apple Computer, Inc. UNIX is a registered trademark of X/Open Company Limited. WordPerfect is a registered trademark of Novell Inc.

SWITCHING COMES
INTO ITS OWN, 54
THE MYTHS OF
TELECOMMUTING, 55

Enterprise Networking

INTERNETWORKING • SERVICES • NET MANAGEMENT

'net/Notes tandem may go head-to-head

By Suruchi Mohan

Notes or the Internet? For now, at least, executives at Lotus Development Corp. can call them complementary. But the future may see Notes, Lotus' groupware application development platform, emerging in direct competition with the Internet.

There are numerous similarities. Notes, despite providing a powerful platform for application development, is primarily a tool for information sharing. So is the Internet. Both provide bulletin board services and a forum for publishing and posting information.

"Most organizations use Lotus Notes as a glorified E-mail and bulletin board service," said Mark Gibbs, president of Gibbs & Co., a consultancy in Ventura, Calif. With the primary function of Notes is groupware, Gibbs said, Notes is largely used for secure information sharing. He



First Albany's Barry McCurdy calls the Internet "a nice adjunct to Notes." Notes, particularly with E-mail'

Interned.

At Ernst & Young in Irving, Texas, John Parkinson, a partner at the company, is

added that Notes has "some good applications, but the cost per seat of Notes and the implementation time are significant."

Cheaper choice

While Notes clearly has the advantage of security, many organizations already use the Internet as an inexpensive way to handle communications.

"The Web technology is an evolving competitor [to Notes]," said Doug Ritchie, vice president of information integration and access at Advanced Micro Devices, Inc. in Sunnyvale, Calif.

He said his peers wasted a Web browser on the desktop, and providing that was easier to do and more economical than giving each of them a copy of Notes. Whether Notes could be replaced by the Internet is unclear, but Ritchie said security is being developed for the Internet.

At Ernst & Young in Irving, Texas, John Parkinson, a partner at the company, is

using the Web for knowledge management.

Ernst & Young publishes volumes of reference information in various forms. "To link things together, you have to deal with large blocks of text. [HyperText Markup Language] is a powerful way to do that," Parkinson said.

While Parkinson said he could put all the information into one database, doing so would require users to have too much knowledge about that database.

"With the Web, it is more easily segragable and browsable," Parkinson said, adding that the Web also allows him to put links between pieces of content. "We tried it with Notes for a while and could do so to some extent; HTML makes it easier."

But most observers say that for now, the lack of security on the Internet prevents it from being a competitor to Notes. Companies will not entrust their internal communications to prying eyes on the Internet, though they may use the technology in conjunction with each other.

"We view [the] Web as a complement

Companies are increasingly seeing the Web as a cost-effective way to perform many of the functions of Notes.

■ **INTERNET**
■ **GROUPWARE**
■ **COMPUTER SECURITY**

to Notes," said John Schulz, senior project manager for groupware at US West Management Information Services in Englewood, Colo.

"Notes is used as a management and publishing tool for [our] internal Internet," he said. That is because not all employees have Notes, but many have Internet browsers.

'net moves

Like others, First Albany Corp. has begun Internet implementation.

"We will use the Internet as a nice adjunct to Notes, particularly with E-mail," said Barry McCurdy, senior vice president and director of research at the Albany, N.Y., investment bank.

Lotus, however, is not worried about losing Notes users to the Internet, either now or over the long term.

"We see the Web with collaborative capabilities, and Notes can publish data on the Web," said Mike Zeman, a Lotus vice president in Cambridge, Mass. "The Web will be an enormous accelerator of collaborative computing and make the Notes server a superstar of the Web."

Wireless LANs improve with Netwave upgrade

By Mindy Blodgett

Kircos, Inc. last week announced a software upgrade for its wireless LAN system that gives users faster and more efficient roaming capabilities.

The Kircos system comprises a CreditCard Netwave Adapter and a Netwave Access Point. The Netwave Adapter achieves indoor ranges of up to 150 feet, using frequency-hopping, spread spectrum radio waves. Netwave Access Point lets users seamlessly connect wired and wireless corporate LANs.

Netwave 2.5 offers a throughput of 45K bps/sec., which is 40% to 60% faster than the earlier version. The data rate in 1M bps/sec. It also offers seamless roaming between access points, according to Kircos in Thousand Oaks, Calif.

Harry Powell, an information systems manager at Modern Tech-

nologies, a health and insurance industry consulting firm in Atlanta, said the speed is a plus for his company's 100 notebook users.

"Sometimes we [meet] in a hotel, and we need to move to a breakout room," Powell said. Wireless LAN capability makes this easier to do.

"They have done the most with integration," said Van Sribar, an analyst at Meta Group, Inc. in Stamford, Conn. "And they have priced it to make the product interesting."

For current users of the hardware, the software upgrade is free. For others, Netwave 2.5 costs \$395 for the CreditCard Adapter and \$795 for the Starter Kit, which includes one access point and one adapter.

The upgrade is available now.

By Mindy Blodgett

Airlines take to the airwaves to deliver travel information

By Mindy Blodgett

Passengers arriving at some of the nation's busiest airports are increasingly not by chaos but by efficient outside agents who wield handheld computers supplying everything from ticketing information to flight information.

Thanks to wireless technologies that can transfer data in a two-second flash, these long lines for baggage check-in, seat confirmation and gate information might soon be history.

The latest example of this capability hails from the technology arm of American Airlines, which offers its wireless communications product to the 54 airlines that use Sabre, the world's largest reservation and computer system.

Observers say the Sabre wireless system — along with those developed by other airlines — will provide significant time-saving and paperwork reduction benefits to the travel industry.

Sabre Wireless is a mobile product designed to supply real-time information on flights, weather, types of planes and other travel news. Eventually, Sabre plans to offer it to all of the system's approximately 30,000 subscribers, in-



The Sabre wireless system enables remote check-in, ticketing and access to flight and weather information.

cluding travel agents, hotels and car rental agencies.

"The possibilities are endless on how this technology can be used," said Gloria Serrano, a principal in airport systems at Sabre Delta Airlines, page 55

Enterprise Networking

Digital rolls out more virtual LAN gear

EnVisN architecture leads competitive net strategy

By Michael Goldberg

Digital Equipment Corp. is in the midst of an 18-month rollout of virtual LAN products.

The company's emphasis is on routing technology that handles users distributed throughout an organization but manages the routers from one central point. This should ease the flow of traffic for users and make their use of computing hardware more efficient, according to observers.

When information systems staffers consider networking gear companies such as Cisco Systems, Inc., Bay Networks, Inc., Cabletron Sys-

tems, Inc. and 3Com Corp. typically come to mind. While these companies rank as the sales leaders, Digital comes in third in LAN switches and fourth in routers and switching hubs, according to International Data Corp. in Framingham, Mass.

If Digital has its way, this rollout will help it grab an even bigger chunk of these markets.

In the game

Analysts say that Digital, which unveiled its enterprise Virtual Intelligent Switched Network (EnVisN) architecture in April, has articulated a strategy that keeps pace with the competition — which is also unveiling paths to virtual networks. Dig-

ital has a leg up, observers said, because it sells a broader menu of products than most networking suppliers.

Over the next year the company will introduce new versions of its ClearVIEW virtual LAN management software. Digital also plans to unveil a series of desktop,工作组和enterprise switches.

"Digital is finally catching up and starting to play a leadership role" in networking technology, said Michael Howard, president of Infostrategies Research, Inc., a network consultancy in San Jose, Calif. One major factor behind Digital's networking success, he said, is lower prices. "In the old days, Digital laid out a higher price spread for [their network products]. Today their prices are more competitive," Howard said.

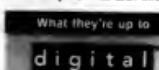
The decision to offer distributed routing is important in the virtual LAN market, analysts said. Of the leading networking product vendors, Cabletron

emphasizes a distributed routing format while 3Com, Bay Networks and Cisco use a centralized routing environment, according to a report by McConnell Consulting, Inc. in Boulder, Colo.

Digital takes distributed route

At Children's Hospital in Boston, senior network analyst Jim Hutchinson said Digital's distributed network model helped him consolidate its purchasing application and operating room schedules onto one server instead of three. He said he used a DECNet 900 multilayer switch as a backbone and a DECRepeater 900 fp switch to move some users from an Ethernet network to an Fiber Distributed Data Interface-based system.

The thing that appeals to me is the distributed architecture they chose," Hutchinson said. "A centralized model puts too much emphasis on a single point of failure, and it also increases the management of traffic" on the network.



Since Digital's announcement of its enterprise Virtual Intelligent Switched Network (EnVisN), the company has offered new switches for distributed routing and dynamic virtual LANs and a series of products to connect remote users.

Other scheduled releases include the following:

End of 1995

Software to manage network policies on virtual LANs, such as those defining users and deciding users' access levels

First half of 1996

Software to build Class 3 virtual LANs based on the network address of each user

Interswitching vendors flood switching market

Raft of announcements puts technology in choice position

By Laura Difesa

A spate of new switch offerings from a variety of small and mid-size vendors is a strong indicator that switching has arrived as the mainstream LAN bandwidth booster of choice for interworking users.

No fewer than six 10Mbps/100Mbps LAN/backbone switches have made their way to the market in the past few weeks. The trend is expected to escalate in the next two months and culminate at the Network/Interop '96 trade show in September, analysts and users said.

Among those that unveiled waves in recent weeks were Intellibloc, Inc. in Chelmsford, Calif.; NetWiz Ltd., a start-up in Haifa, Israel; Newbridge Networks, Inc. in Herndon, Va.; Retic, Inc. in Santa Monica, Calif.; and Standard Microsystems, Inc. in Hauppauge, N.Y.

"There's a feeding frenzy going on right now. Just about anyone who calls themselves an interworking supplier is introducing a new switch," said Eric Hinding, a senior consultant at Strategic Networks Consulting,

Inc. in Rockland, Mass.

"It's definitely a buyers' market," Hinding said. "But users must take care to buy switches with a minimum of two high-speed ports and built-in network management. Otherwise, they might find themselves stuck with a cheap, bare-bones product that doesn't have adequate performance for their needs."

Worth it

Clarke Robbins, an analyst at Aberdeen Group, Inc., a Boston-based consultancy, said the cornucopia for users lies in the enhanced functionality of the latest switch offerings rather than in pricing, which is competitive but not de-

termining. "Extra bandwidth is worth the price for the extra throughput its 1,000 users gain from their Bay Networks, Inc. 10Mbps/100Mbps switching hubs."

"We're squeezing every bit of bandwidth out of our switches to support an increasing number of advanced applications like imaging," Hinding said. "Up to 50% of our users can be classified as power users; our bandwidth requirements are scaling upward so quickly that we've had to segment our networks several times in the past 12 months alone."

According to Strategic Networks' upcoming Global View 2000 Quarterly Report, due at the end of the month, plenty of other bandwidth-hungry users are driving the popularity of switches to an all-time high.

This suits users such as Michael Encalvo, manager of voice and data at South Coast Air Quality Management District in Diamond Bar, Calif. He said the



Switches sizzle in summertime		
Company	Product	Price
Intellibloc	HSM II high-speed switching module for the OfficeStar hubs	\$2,750
Retic	Turboswitch 2000	Starts at \$34,000
Newbridge Networks	36150 MainStreet ATMNet Release 3.0	Not yet available
Retic	Turboswitch 5000	\$3,995
Standard Microsystems	EliteSwitch ES/E ATX	\$14,950

cy and supports the industry standard Simple Network Management Protocol.

Industry veterans such as Newbridge Networks and Retic, meanwhile, have begun shipping enhanced versions of products. Newbridge is addressing the high end of the market with Release 3.0 of its 36150 MainStreet ATMNet with enhanced video capabilities. Retic has bolstered the functionality of its SwitchStar 5000 with Virtus LAN capabilities and offers support for up to 5,000 users and 10 switched Ethernet ports for \$200 per port.

Finally, GMC introduced the EliteSwitch ES/E ATX, a backbone LAN switch that offers 1.6G bytes bandwidth and supports Fiber-Distributed Data Interface, 100Base-T, Fast Ethernet and 100VG-AnyLAN.

Enterprise Networking

Here come more Web tools

Products emerge to manage and analyze site traffic

By Gary H. Anthes

Driven by the explosive popularity of the Internet's World Wide Web, vendors are rushing to market new Web services and upgrade existing ones. Many of these products are aimed not at Web end users but at those who create and maintain Web sites.

Recently Open Market, Inc. in Cambridge, Mass., introduced a product that allows Web site system administrators and business managers to analyze traffic to their sites, helping

them optimize their Web offerings from a technical and business standpoint.

Simultaneously, Internet Profile Corp. in San Francisco announced a third-party Web audit service that can be used to support Web advertising rates and evaluate the effectiveness of a Web site.

Open Market's WebReporter uses log files maintained by most Web servers to produce reports detailing access to different parts of a Web site — areas containing product information, company data or pricing, for example — so that managers can determine the relative popularity of those features.

Besides counting the number of "hits" on a site, WebReporter tracks what types of browser were used, the Web sites from which the requests originated and the start and end times of the requests. Users can create customized reports incorporating any of its data fields.

TriNet Services, Inc., an Internet services firm in Raleigh, N.C., is testing WebReporter. It plans to offer standard and user-specified reports to its customers, including companies such as First Union Corp. and Northern Telecom, Inc., that have Web sites on TriNet servers.

"Its main advantage is its ability to build data over time so you don't have to process huge log files," which can be as big as 40M bytes, said Andy Schwab, a vice president at TriNet.

WebReporter can generate reports by Web users' geographic area and domain — such as commercial, government or education. It can also cross-correlate data to show, for example, whether a certain kind of information is being sought by existing and prospective customers or competitors.

WebReporter is priced at \$495 and runs on major Unix servers.

for the wireless industry in general," said Virginia Brooks, an analyst at Aberdeen Group, Inc. in Boston. "This kind of use gives a long way in building customer trust in wireless uses, one of the stumbling blocks to such technologies as CDPD."

The only cloud has been the slow deployment of CDPD networks nationwide, but Serafin said Sabre is confident the network rollouts are accelerating.

American Airlines plans to start using the system at the Dallas and Miami airports and at Kennedy Airport in New York in the next couple of months. In addition, the airline is testing wireless systems in European airports and looking at installing wireless kiosks.

These kiosks would give passengers last-minute travel information as well as offer the network to mobile workers seeking access to the home office.

America West is not the only airline taking the wireless approach, however.

Delta Air Lines is using a spread-spectrum wireless technology at Kennedy Airport and in Atlanta and Southwest Airlines, the first carrier to offer a ticketless travel system one year ago — when rival airlines blocked it out of the Apollo and System One reservation networks — has developed its own radio spread-spectrum wireless LAN information system.

Ones, twos

Sabre officials say it takes about two seconds to transmit data to users of the handheld devices on the Sabre Wireless system.

Airlines

CONTINUED FROM PAGE 53

Aviation Technologies

Sabre Wireless uses Sabre's own emulation software, which is installed on IBM ThinkPads and communicators via McCaw Cellular Communications, Inc.'s AirData Cellular Digital Packet Data (CDPD) network. The mobile device was developed by The Sabre Group, a division of AMR Corp. in Fort Worth, Texas, which owns American Airlines.

"We envision curbside check-in with the product, servicing passengers much more quickly. For instance, being able to send ticket agents down to the cruise docks in Miami to check in passengers, sell tickets, whatever," Serafin said.

"We are looking at adding mobile printing capabilities. Hotel guests could be processed from hotel lobbies," he added. "We are talking about movable, virtual travel offices."

Serafin would not release pricing information for the system but said it will include the ThinkPad, which cost approximately \$4,000 each, and a flat rate for unlimited airtime on the AirData network.

"This is a real success story and a great thing

Mitch Betts

Telecommuting: The dark side



The telecommuting backlash is here. Sprinkled among the give-and-take articles about the virtual office are thoughtful reports about

the downside. Earlier this year, we saw the *Fortune* column headlined: "Let's hear it for the office. Work at home? Not me. I want to be part of the daily pageant, the drama, the morale-building community around the watercooler."

Similarly, Neal Thoraberry, a professor of industrial psychology at Babson College in Babson Park, Mass., says the virtual office may be virtual death for your career because telecommuters can't play the game of office politics.

An article in *Forbes* magazine warns that telecommuting "presents an environmental disaster of the first magnitude." Why? Because modern-living expatriates from the city will buy all the rural open space and turn it into yuppie homesweat-homes that destroy forests and streams.

New for Eighty-Eighth

For IS managers, the most eye-catching report comes from Forrester Research in Cambridge, Mass., which finds that outfitting the teleworker isn't cheap. The cost to equip telecommuters exceeds \$4,000 for initial installation and \$1,000 in annual expenses.

"Productive telecommuters must have up-to-date technology," says Forrester analyst David Goodire. "Hand-me-down PCs and antiquated modems don't cut it when connecting to the corporate network."

Goodire's research indicates that most telework will be done by "white-collar workhorses" who squeeze in a few extra hours of work at night, on weekends and while traveling. For the remainder of the decade, full-time telework will just be an asterisk in corporate statistics.

So, the backlash is here — and that's good news. The hype behind telecommuting has been fueled by Utopian dreams and deceitful photos of telecommuters lounging by the pool or working in their robes and slippers. Artificial intellig-

ence and the Internet also rode waves of hype until the backlash slapped everyone back into reality.

Let's hope the telecommuting backlash will do the same and lead to more realistic thinking about when telecommuting works and when it doesn't.

For starters, the lounge-chair photos should be banished and several telemyths debunked. One persistent myth is that telecommuting replaces day care for children. Everyone knows you can't do extensive, intensive business work while caring for small children. When telecommuting can do is give you an hour or two more with your kids because you're not stuck in traffic on the freeway.

Another myth is that full-time telecommuting will become ubiquitous. Telecommuting is not right for every employee or every type of job — or even the majority of jobs.

Telecommuting also isn't an all-or-nothing option. In fact, doing it one or two days a week is often better than full-time telecommuting because telecommuters can still get face-time with coworkers and supervisors.

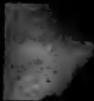
Out of sight, not out of mind
The big minus of all this may be the Neanderthal view of many managers that workers out of sight aren't really working.

Teleworkers report that they are actually more productive. One reason is they face fewer interruptions than in the typical office. And only high-caliber employees are allowed to telecommute in the first place, and they know it. They're really working.

But that leads to another dark side. Remote workers often work far more, thus requiring strict overtime rules and failing to separate their work and personal lives.

If nothing else, there are pros and cons to tele-work, but it can be highly successful if there is sustained management attention and training for employees and managers. Telecommuting will find its niche in corporate America once it emerges from the fat-of-the-month club and managers apply the practical lessons learned from countless pilot projects.

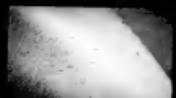
Bens is Computerworld's senior editor, social and legal issues. His Internet address is bens@cw.com.



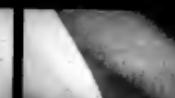
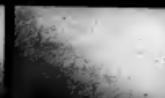
You know how applications look.



You know how to click a mouse.



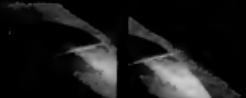
You know how to draw a line.

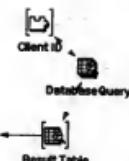


You know how to watch



a computer do all the work.





This concludes your training in OO programming with VisualAge.

No one's debating the benefits of object-oriented programming. The only question is whether it's worth the time and money it would cost to implement.

With VisualAge,™ the question may be irrelevant. Because its simplicity can easily remove the barriers between you and the fast development of object-oriented business applications.

VisualAge goes
light years beyond

Can your software do this?

mere GUI builders. It's a rich graphical environment that takes you through the complete development process, from interface design to working application. As *InfoWorld* said in a recent review, it's "a masterpiece of visual programming."

With the VisualAge C++ edition, you work with "parts" from IBM's Open Class Library, creating visual links simply by clicking and dragging.

These parts are easy to modify and compliant with industry standards, so you can use them across platforms, from the smallest clients to the largest servers.

When your project is complete, you've created an application with industry-standard code (C++ or Smalltalk). And in a fraction of the time it would have taken to develop with traditional tools, you're ready to deploy a true object-oriented application — complete with rock-solid components that can be used again and again in your future development projects.

Of course, VisualAge

is only part of your company's complete OO solution.

That's why IBM offers more OO products, consulting, education and services than any other software company in the world. To reap the benefits of object-oriented technology in your business, just call us at 1 800 IBM-3333 ext. GA 070 or visit our Internet web site at <http://www.software.ibm.com>.

You'll find that you've been in training for VisualAge all your life.



IBM

Solutions for a small planet™

Only one thing can protect you from being left behind by advancing server technology.

A U6000/500 UNIX Server from Unisys.

Get a head start on new technology with the multiprocessing server that supports future generations of Intel technology.

There's a whole new kind of server available from Unisys that actually helps you re-architect your systems environment for client/server computing.

It's the U6000/500 family of multiprocessing UNIX servers. They feature an innovative design that lets you upgrade from today's Pentium™ processors through future generations of Intel processors—all within the same base cabinet. That's what we call true investment protection for evolving client/server needs. But there's even more.

Some of the biggest OLTP bottlenecks are a result of I/O subsystems that can't keep pace with high-volume transaction rates. We've developed a breakthrough system architecture that overcomes that challenge—and delivers increased capacity,



connectivity and throughput for your demanding OLTP environments.

But don't just take our word for it. Computer Intelligence InfoCorp had some

interesting things to say about Unisys in a report on suppliers of UNIX multiprocessors. For your own copy, and for more information about the U6000/500 family, call us at 1-800-874-8647, ext. 204. Learn more about a new approach to client/server that keeps you out in front of new technology for a change, instead of behind it.

UNISYS

© 1990 Unisys Corporation. UNIX is a registered trademark in the United States and other countries. Unisys exclusively through Unisys Computer Limited. Intel Inside and Pentium Processor Logo are trademarks of Unisys Corporation.

Large Systems

HARDWARE • SOFTWARE • CORPORATE STRATEGIES

AS/400 field grows greener

By Craig Stedman

Clien/server technology and the AS/400 are starting to get to know each other.

Lawson Software, a key vendor of client/server applications for Unix systems, plans this fall to ship a release of its software with identical capabilities for IBM's AS/400 machines. AS/400 users who were briefed by Lawson late last month said they expect to be able to buy the software in September (see chart at right).

Other Unix-oriented client/server vendors such as PeopleSoft, Inc. and SAP AG also expect to ship AS/400 versions of their products in the next 12 months. Meanwhile, several AS/400 software companies have released cleint/server packages or plan to do so in the near future (see chart below).

The AS/400 is the most widely used midrange system, with an installed base of more than 360,000 boxes. But virtually all of those machines are used in traditional green-screen or terminal emulation modes. Until IBM's shipment this year of Version 3 Release 1 (V3R1) of the OS/400 operating system, the AS/400 was mostly seen as incapable of client/server applications.

Limited use

Lawson is a prime example. The Minneapolis-based company got its start in the IBM midrange market and has about 1,800 terminal-oriented AS/400 customers. Lawson's newer Universe software has run on the AS/400 all along, but until now, it was limited to host-centric uses, said Mark Galloway, director of product marketing at Lawson.

Doing client/server on the AS/400 "was possible" before V3R1, but the new version "took away a lot of the barriers," said Thomas Rittman, an analyst at Gartner Group, Inc. in Stamford, Conn. Prior to V3R1, the AS/400 lacked strong Windows client capabilities, support for

Expanding Universe

Lawson Software's Universe server and Open Enterprise Desktop client software

Features

- Dynamic Data Exchange support for sharing data with Windows applications
- Customizable tool and navigation bar with icons grouped in tabbed folders
- Support for defining workflow and business process rules
- Ability to attach Lotus screens to MAPI-compliant E-mail documents
- Visual Basic compiler with macros extensions for tailoring applications

Pricing

- \$31,000 per application module for 30 concurrent users

Availability

- Unix systems - immediate
- AS/400 systems - fall

standard database interfaces and competitive implementations of TCP/IP and the SQL query language, he said.

"IBM was slow in coming out with more of a client/server technology" for the AS/400, agreed Robert Preston, associate vice president for information systems at Examination Management Services, Inc. (EMSI) in Dallas. But V3R1 "is a very different operating system" that should be much more amenable to client/server products such as Lawson's Universe, Preston said.

EMSI, which gathers and processes health data on life insurance applicants, will install V3R1 this month, Preston said. Later in the year, the company plans to migrate from its existing Lawson applications to Universe Release 6.1 and Lawson's equally new Open Enterprise Desktop client software.

The new features Lawson provides "hopefully will empower our users to do more of their functions from the desktop," Preston said. Training new employees who have previous PC experience should also be easier, he added. "Using the Lawson software is going to be much less of a jump," he said.

Users rave

Dean Foods Co. sent almost 40 end users and department managers to check out the new software at Lawson's user group conference in Minneapolis late last month. "We pounded on it in the lab, and our people came back very impressed," said Rod Liddle, corporate controller of the food and dairy processing company in Franklin Park, Ill.

"It's going to be a lot easier to navigate and get around to accomplish the tasks they want to accomplish," Liddle added.

With Universe 6.1 and Lawson's new client software, Dean's users should be able to move among applications without first having to close the application they are leaving, Liddle said.

Image system cures hospital records ills

By Julia King

In the past year, St. Vincent's Hospital in Birmingham, Ala., has become a model of health care efficiency.

Among other things, the 335-bed acute care facility has done the following:

- Cut patient registration time from 10 to 2.5 minutes.
- Streamlined insurance verification time by 60%.
- Eliminated 20% of its patient office staff, even though patient registrations have increased 40%.
- Stored all patients' records and insurance information on-line.
- Reduced the average accounts receivable time from 35-plus days to 25 days, saving \$2.2 million in the process.

Behind every one of these accomplishments, according to hospital officials, are two image-based client/server systems that together will knock off about \$5 million from administrative costs in the next two years.

Quick payback

So far, St. Vincent's has invested about \$3.5 million in the image-based systems, according to Curtis James, an executive vice president and St. Vincent's chief financial officer. Now that they have both been up and running for a full year, the hospital is calculating its payback period, which James estimates will range from 2 to 2½ years.

Developed using FileNet Corp.'s Image Management System and WorkShop language, the new systems also use America's Management Systems, Inc.'s (AMS) Patient Link and Patient Record software to convert paper-based records into electronic images. These, in turn, can be merged with data from a mainframe-based hospital information system and other departments' laboratory and pharmacy systems to form a comprehensive electronic patient record.

On the client side, the hospital has so far installed about 140 Windows-based PCs, giving staffers in all departments instant access to all patient, medical, insurance and financial information. The system's servers, which house the application and patient data in an Oracle Corp. database, are IBM RS/6000 computers.

Additionally, working with AMS in Fairfax, Va., the hospital has built several rules-based workflow modules that streamline and automate hospital business processes, ranging from gathering pre-admission data to completing and archiving patient medical charts.

Under one of these modules, physicians can complete and sign off on patient charts on-line. Under another module, the hospital pharmacy can electronically retrieve patient charts to perform monthly quality checks, which can also be completed on-line.

"Before, the pharmacy would have to request that medical records make copies of the 200 or so [paper-based] charts they needed. Someone would have to take them there, get a sign-off on them, and then shred them when they were returned to medical records," recalled Jose Valenzuela, assistant vice president of business services.

On the administrative side, a module in the Patient Link system electronically gathers insurance and medical information necessary for admissions days — and sometimes weeks — before a patient actually arrives at the hospital. This has worked to cut registration time as well as boost customer service, especially with expectant mothers, James said.

About 25% of patients admitted to St. Vincent's are there to deliver a baby, he noted. "With the new system, we've worked out a system so those patients don't need to come to admissions anymore because they're pre-admitted."

Join the crowd

Other vendors developing client/server business applications for the AS/400 include the following:

Unix vendors	Ship date
PeopleSoft	Not specified
SAP AG	Mid 1996
AS/400 vendors	
I. D. Edwards	Finances - November 1995 Manufacturing/distribution - early 1996
System Software Associates	June 1995
Software 2000	Human resources - January 1995 Financials - late 1995
Marcus	First quarter 1996



In the hands

Image-based client/server systems have helped reduce St. Vincent Hospital's average accounts receivable time to 25 days, compared with health care industry average of 66 days. Each day in the accounts receivable cycle translates to \$73,500 in costs.

Large Systems

Still waiting



... yet many others have not
When will a critical application
be deployed?

Within a year
Within three years
Within five years
Within one year

Source: International Data Corp., Framingham, Mass.

Briefs

Entry customers

CIBS Technologies, Inc., in Orange County, Calif., last week announced a healthy portion of its information systems operations to IBM. IBM Technologies, Inc., terms of the five-year contract, estimated to be worth between \$45 million and \$45 million, call for IBM to manage and support the restaurant chain's AS/400 systems, help desk, data and voice networks, and LAN server operations.

IBM to revamp product data line

As it did with its Workgroup product line, IBM plans to completely revamp its product line data management (PDM) software, ProductLineManager, through the company is more about specific. The software, which brings together planning, designing, engineering and production efforts in one collaborative arena, will be unveiled at the SEMA/PDM Vision '96 show in Chicago, Sept. 25-26.

Manufacturing score prominently

SEMA Associates, Inc., in Billerica, Mass., next week plans to add TCP/IP, remote management and dial-in support to its low-end Concert, communications controllers for IBM's AS/400s and

mainframes. The features will ship this month as separate software modules, the company said. Mainframe customers using Concert will be able to connect to TCP/IP networks without supporting that protocol on their AS/400s, according to IBM. Remote dial-in is also being added to the AS/400 version of Concert, while the AS/400 and mainframe products will now support remote management from a Windows PC at a central site.

Informix ports database to Unixys

Informix Software, Inc., has joined Oracle Corp. and Red Brick Systems in porting its database software to Unixys' Cmaxx, a massively parallel processing computer system. The Informix relational database management system is expected to be available on the Unixys hardware next year.

Comdisco targets health care

Comdisco, Inc. in Rosemont, Ill., acquired the assets of Medical Equipment Sales & Leasing, Inc. and is using them to form a new division targeted at the pharmaceutical, chemical and health care industries. The Comdisco Laboratory and Business Group will sell and lease used equipment and provide asset management and other services to those vertical markets. The unit is at National Equipment's former facility in Canton, Mass.

Unix environments Users don't have to abandon their existing software applications, and cabling doesn't have to be replaced. Current twin-axial devices can also be used.

Emphysis'96 is available in small, medium and large versions. The small and medium versions use The Santa Cruz Operation's SCO Unix operating environment on an Intel Corp.-based PC, while the large version supports migrated System/36 applications on a Digital Equipment Corp. AlphaServer 400.

Prices for Emphysis'96 small system start at \$12,000.

► **Emphysis**
(617) 941-9337

Information Builders, Inc. has introduced Distributed SmartMode for EDASQL, a query analyzer.

According to the New York firm, Distributed SmartMode for EDASQL is an intelligent analyzer/inventor designed to control distributed queries sent to Information Builders' EDAS distributed servers through the EDAS Server 3.1. It can predict runaway distributed queries before any system or network resources are used.

Distributed SmartMode for EDASQL provides end-to-end control to prevent unauthorized or poorly written requests that consume corporate database resources. It requires knowledge about site-specific data access and cost patterns by monitoring actual traffic or simulating typical requests. The analyzer uses this experience to construct rules that can predict the costs of future requests.

It is compatible with ad hoc query tools and client/server gateway tools that access EDAS servers, including products from Lotus Development Corp., Powersoft Corp., Oracle Corp., Informix Corp. and Microsoft Corp.

Pricing for Distributed SmartMode for EDASQL starts at \$24,500.

► **Information Builders**
(212) 736-4433

Prolific, Inc. has announced Snapshot/400 4.0, a new version of its graphical IBM AS/400 performance monitoring tool.

According to the Arlington, Texas, company, Snapshot/400 captures AS/400 performance data and graphically represents performance activity and trends.

Snapshot/400 monitors remote communication lines, current and average CPU usage, Top 5 jobs, response times, faulting rates, disk space, current transactions and memory utilization.

Snapshot/400 provides alert facility; it can be configured to send an alert when a batch program is interrupted, requiring a message response before it continues. Alerts can be tracked for auditing purposes.

Licence fees for Snapshot/400 start at \$2,750.

► **ProTec**
(617) 649-3222

Large Storage Configurations, Inc. has introduced the Integrated Data Server (IDS), a product based on Sun Microsystems, Inc.'s SPARC technology and Solaris 2.0 software.

According to the St. Paul, Minn., company, the IDS is a high-performance, plug-and-play network storage server that provides file management, storage and archival and retrieval services. It can be installed on a Network File System network and can manage the storage of heterogeneous systems, including systems from Sun, Hewlett-Packard Co., Digital Equipment Corp. and Silicon Graphics, Inc., on the network.

The IDS was designed to manage storage capacities from several gigabytes to hundreds of terabytes.

Pricing for the IDS starts at \$75,000.

► **Large Storage Configurations**
(612) 482-4535

4th Dimension Software, Inc. has unveiled Control-O 2.2.0, automated systems operations software.

According to the Irvine, Calif., company, Control-O 2.2.0 features a rules-based design that eliminates the need for programming in developing automation functions. It includes provisions applications that can be used as automation procedures or as the basis for designing automation facilities.

Control-O 2.2.0 includes automated server architecture to provide scalability of automation. It also features a proxy environment that defines and reuses log-on and started task operations.

Pricing for Control-O 2.2.0 starts at \$30,000.

► **4th Dimension Software**
(714) 787-4300

Kingston Technology Corp. has introduced the Data DS6500, a rack-mountable, external expansion chassis.

According to the Fountain Valley, Calif., company, the Data Site DS6500 is RAID-compatible and can house up to nine half-height SCSI or four full-height and one half-height drives. It can support one to four hosts.

The Data Site DS6500 is available with a 50-pin SCSI-2 or fast wide 68-pin SCSI-3 I/O interface. It has monitors for temperature, power supply and fans and includes warning lights and alarms.

Pricing for the Data Site DS6500 starts at \$1,200.

► **Kingston Technology**
(714) 455-2600

Altai, Inc. has announced Zack Enterprise Automation 3.2 for MVS.

According to the Arlington, Texas, company, Zack 3.2 is an integrated enterprise automation system designed for distributed processing environments. It features multiple subsystem support that allows multiple copies of the product to execute on a single IBM MVS system sharing one database or separate databases. Companies can purchase a single license per MVS system to distribute automation functions.

Zack Enterprise Automation 3.2 for MVS enables communication with other Altai applications running on different systems or platforms. That function lets users receive message traffic relating to remote mainframe systems from a host system.

Pricing for Zack Enterprise Automation 3.2 for MVS starts at \$45,500.

► **Altai**
(817) 649-1816

Emphasys, Inc. has introduced Emphasys/96, a product for IBM System/36 environments.

According to the Eden Prairie, Minn., company, Emphasys/96 supports System/36 migration to Unix environments, and it supports System/36 applications in

COMPUTERWORLD AUGUST 7, 1995

**"OUR 35,000 STUDENTS
DON'T KNOW WHAT
EDA/SQL MIDDLEWARE IS...

THEY JUST KNOW
THEY DON'T HAVE TO
WAIT IN LINE
TO GET THEIR GRADES."**

Ricardo Bartra
Manager, End-User Computer
Alamo Community College District
San Antonio, TX



At the three colleges that make up Alamo Community College District, there are no more long lines at the registrar's office. When students want information on their grades, tuition bills, or even their financial aid status, they simply walk up to one of the conveniently located kiosks, enter their Social Security # and password, and breeze through a colorful touch screen menu. They can even print out the information on the kiosk printer.

Do the students know they're using a PC and Information Builders' EDA/SQL middleware to transparently access and join files from the college mainframe?...No. Do they know their mainframe database queries are being processed and displayed in real time on the

kiosk PC using Information Builders' FOCUS/EIS for Windows?... No. Do they know the college has saved millions of dollars by protecting its investment in legacy systems rather than re-engineering its entire information architecture?...We doubt it. Do they appreciate access to their student records 24 hours a day without standing in long lines?... You better believe it!

EDA/SQL middleware from Information Builders. The process is transparent. The benefits are obvious.

For more information and a free video showing how different companies have benefited from EDA/SQL middleware technology, contact your local Information Builders sales office, or call **1-800-969-INFO**.
In Canada Call 416-364-2760



EDA/SQL®
Transparent Enterprise Data Access

FOCUS/EIS and EDA/SQL are trademarks of Information Builders, Inc., NY, NY 10103 212-736-9433 INFO@IBLCOM

**Information
Builders**

U S WEST Communications Makes the Right Connections



Calling on the SAS® System for Critical Decision Making, the Telecommunications Leader Responds to Customers in More Ways than Ever

To meet the needs of 25 million customers spanning 14 states, U S WEST Communications is doing more than talk about customer service. It's *listening*—and transforming business processes to monitor every facet of customer interaction. Part of this transformation involves collecting, analyzing, and reporting on massive amounts of data—everything from daily call volume to disruptions in nearly 45 million miles of copper/fiber communication lines.

"Until recently, various organizations and systems within U S WEST Communications were responsible for portions of the data collection, reporting, and analysis tasks necessary to assess the performance of our business," says Ronald Telson,

Director of Mass Markets and Operations-Processes. "We are now implementing a program to provide an integrated and unified approach to management-by-facts."

The Data to Meet the Demand

When it came to choosing the software to meet that business challenge, U S WEST Communications called on the SAS System of software. More than 28,000 companies throughout the world rely on the SAS System for its analytical breadth as well as its capabilities for data warehousing, for client/server applications development, and for graphical user interface—all of which U S WEST Communications found useful.

As a result, U S WEST Communications expects to achieve a key business goal—to monitor the quality of its processes and the health of its network.

That's why we've chosen them as the 1995 recipient of our Enterprise Computing Award—given annually to the organization that best exhibits excellence in leveraging SAS Institute technology to meet critical business goals.

To learn more about the SAS System, call or send for our free Executive Summary. Or to learn how your organization might qualify for the 1996 Enterprise Computing Award, ask for our free criteria.



SAS Institute Inc.
Phone 919-677-8200
Fax 919-677-4444
Email: cw@sas.sas.com
URL: <http://www.sas.com/>
In Canada: 1-800-363-8397

SAS is a registered trademark of SAS Institute Inc.
Copyright © 1995 by SAS Institute Inc.



Application Development

CASE • LANGUAGES • TOOLS

Rival integration methods fight for developers

Expersoft and Teknekron tools follow own paths

By Elizabeth Heichler

There's more than one way to integrate applications. This week, developers who want new ways for distributed applications to share information can pit two technology approaches.

In one corner are object request brokers (ORBs). ORBs sit on client and server systems and manage interactions among the objects on a distributed network, arbitrating objects' requests for information and services from one another.

And in the other corner is publish-and-subscribe technology. This approach uses a software bus that broadcasts data over a network. Data is picked up only by applications that have been set up to subscribe to it, and traffic goes over the network only when the subscribing application is up and running. Some see say this is a less complex approach to inter-process communications.

CORBA conforming

Wearing the ORB trunks is Expersoft Corp.'s PowerBroker 4.0, a major upgrade to its ORB, formerly called Xshell. With PowerBroker 4.0, Expersoft is one

of the first ORB vendors to launch a product that conforms to the latest version of Common Object Request Broker Architecture (CORBA) Release 2.0. But because no one object model has established itself as a standard, PowerBroker has been designed as a "meta-ORB" that hides the differences among object models. This frees developers from worrying about the underlying object architecture, according to the company.

PowerBroker 4.0 also adds support for Smalltalk interoperability. This is of great interest to Andersen Consulting's Eagle Technology team, said solutions architect Kent Steffen. Object orientation and Smalltalk are key elements of the Eagle Technology project, which is defining a new baseline for software development at the Chicago-based consultancy. Steffen also praised the flexible architecture, which he said will make it easier to modify systems down the road.

ORBs are increasingly the middleware of choice for corporations that are moving to object-oriented programming and want to build a software infrastructure following the same philosophy. Most comply with the Object Management Group's (OMG) CORBA specification. Us-

ers say CORBA compliance is important because it allows them the flexibility to change vendors and use any product that implements the standard.

Its rival, Teknekron Software Systems, Inc., which recently launched its Rendezvous Software Bus. The product is a stripped-down, shrink-wrapped version of the message transport mechanism technology on which the company has based its offerings of middleware for the financial industry.

Teknekron's approach is not incompatible with ORBs. In fact, the company is working with the OMG to extend CORBA to support such an event-driven

communications model, said Bradley Rose, vice president of core technology at the Palo Alto, Calif.-based Teknekron.

At cellular services provider AirTouch Communications, Inc. in Walnut Creek, Calif., consultant Jeffrey Cavallaro said he found Rendezvous provides a "nice, economical way of processing events. It's much simpler than an object request broker scenario."

In other news, IONA Technologies Ltd. and IONI Distributed Systems, Inc. have successfully integrated IONA's ORB with IONI's fault-tolerant software technology. The Orbix+IONI product will begin shipping next week.

New object request brokers and messaging middleware

Product/Vendor	Features	Price
PowerBroker 4.0/ Expersoft San Diego	Supports CORBA 2.0, DCE 2.0; interprets with Smalltalk, C++ and Visual Basic.	\$5,000 Smalltalk or C++ developer's kit; deployment version starts at \$175 (per client), \$575 (per server)
Rendezvous Software/ Teknekron Software Systems Palo Alto, Calif.	Messaging-oriented middleware supporting publish- subscribe and point-to-point; will have interfaces to Visual Basic and Power- Builder and adapters for Novell and leading PC desktop applications	\$350 to \$3,000, depending on platform
Orbix+IONI/ IONI Distributed Systems Wellesley, Mass. IONA Technologies Dublin	Fault-tolerant version of IONI's Orbix object request broker using IONI's technology for active replication	\$12,000

clude the best features of both products to offer a suite of tools, he said. This suite would, for example, take advantage of Openlignight's strength in creating workflow applications and VIP's rich-set report. Acquaviva declined to give a time frame for this suite.

Concurrent with this agreement, Revelation announced that it has started to ship the new version of VIP, which Lotus built. Version 1.1 includes features such as rich-text support, improved query performance and productivity tools and applications.

More tools

In other news, Lotus announced Notes Reporter for Windows 1.1, a report writing and analysis tool. Reporter creates reports on data contained in Notes databases.

"Notes Reporter looks like a good, solid product," said Greg Wurbrach, Notes programmer at Westin Hotels and Resorts in Seattle. It performs essentially the same functions as Approach, Lotus' desktop database spreadsheet, reports and charts — without the overhead, he said. Notes Reporter also offers simpler functions.

The product, which will ship in the third quarter, costs \$30 per unit for 100 units or more.

Revelation/Lotus licensing deal may boost low-profile Notes product

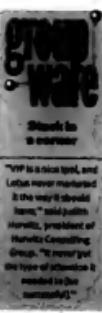
By Suruchi Mohan

Revelation Technologies, Inc. recently announced that it has acquired an exclusive license from Lotus Development Corp. to develop and market Lotus Notes VIP. The agreement could boost VIP's image in the market.

VIP — or Visual Programming — is a Windows-based application development environment for creating Notes applications. It is a subset of LotusScript, a scripting language that will be embedded in the forthcoming Notes 4.0. Under terms of the agreement, Lotus will continue to use VIP unrestrictedly.

Some industry watchers see the move as Lotus' attempt to streamline its product line and focus on developing new versions of Notes and bringing them to market.

"Right now, they are very focused on the platform and getting Notes to be ubiquitous," said Judith Hurwitz, president of Hurwitz Consulting Group, Inc. in Newton, Mass. "They have to



"VIP is a nice tool, and Lotus never marketed it the way it should have," said Judith Hurwitz, president of Hurwitz Consulting Group. "It never got the type of attention it needed in the marketplace."

do a lot to take the emphasis off the operating system and put it on Notes. They [probably] feel they couldn't focus on both."

Hurwitz called Lotus' decision disappointing. "You can't have a good platform without a tool," she said.

For Revelation, perhaps the biggest gain is Lotus' staff, said Audrey Angus, vice president of marketing at Percussion Software, Inc., a Lotus business partner in Stoneham, Mass. Under the agreement, a team of core VIP developers will join Revelation. This, Angus said, is a big plus given the current high demand for Notes developers.

Revelation's acquisition of VIP raises the question of what will happen to its competing application development product, Openlignight.

JAMES ACQUAVIVA, president of Revelation, said the Stamford, Conn., company will continue to develop both products for now. Subsequently, his development team will try to in-

Application Development

Viewer freebies unveil imaging for users

By Tim Ouellette

Computer users could soon find themselves with more image viewers on their desktops than files.

Vendors are assembling to offer free image viewer software as part of their software offerings — or; in the case of Microsoft Corp.'s Windows 95, as part of the operating system.

There are two kinds of viewers being provided: image viewers that let users see many types of file formats and those that let users call up only one kind of format.

On the multiple-format front, Lotus Development Corp. is providing a free image viewer for Notes called the Lotus Image Viewer. And Wang Laboratories, Inc. is developing an image viewer for future versions of Windows 95 and Windows NT as part of its lawsuit settlement with Microsoft.

In the other camp are the single-format image viewers, which are usually found in electronic distribution software packages such as Adobe Systems, Inc.'s Acro-

bat, Novell, Inc.'s Envoy and Common Ground, Inc.'s Common Ground 2. In these packages, documents are turned into one format for movement across the network or onto the Internet.

The free viewers from Wang and Lotus will provide a small amount of functionality (see chart) but will act more as a preview of what users can do with imaging on

		A room with a view
Company	Viewer	Features
Lotus	Lotus Image Viewer (For Notes)	Displays image files, icons and OLE documents created in Notes. Zooms, rotates, prints, saves and performs optical character recognition on images.
Wang	ImageVue (For Windows 95, Windows NT)	Scans paper documents and incoming faxes. Displays and annotates files and faxes. Adds images to Windows applications via OLE.

the desktop. For example, to smoothly integrate the viewer into a business application, users will have to buy component imaging software, which is offered by Wang and Diamond Read Software, Inc., among others. [CW, July 10].

"I think the importance of the free viewer is it encourages images as a standard desktop data type," said

Bruce Silver, principal at Bruce Silver Associates in Weston, Mass. And when someone attaches an image to an electronic-mail message, for example, there wouldn't be a question of whether or not the reader can view the image, he added.

With the Wang/Microsoft agreement and IBM's purchase of Lotus, smaller developers of commercial image viewer software are caught waiting for the impact of the new free viewers on their sales. Computer Clearing House, Inc.'s Imaging Group, for example, has a Notes imaging tool kit called FileCabinet that also includes a viewer.

To differentiate the product from the free Lotus viewer, Computer Clearing House lets users batch-scan paper files into images, then view up to 36 file formats. Users can also create a number of zoom views of an image, so they don't have to search the entire paper at a time, due to certain information, according to Rodney Labby, marketing manager at the Rochester, N.Y. firm.

Some analysts think that even with the influx of free viewers, there will still be room in the growing imaging market for small niche players to make money.

"There is still an opportunity for companies to offer the next level of functionality and charge for it," said Jennifer Mitchell, principal analyst at Datquest, Inc. in San Jose, Calif.

and costs \$395. ► Progress Software (617) 290-4000

Versatec, Inc. has unveiled ToolVox, a suite of software development tools.

According to the Skillman, N.J., company, ToolVox lets developers increase and enhance the use of voice in multimedias applications.

It incorporates technology that enables voice compression ratios of 35-to-1 without compromising the character and quality of the original voice. Developers can also use ToolVox to create applications that let end users manipulate voices during playback.

The suite of tools comprises ToolVox Compressor, for voice compression; ToolVox Warp-II, for speech time-shifting; ToolVox Morph-II, for voice transformation; and ToolVox PerfectPitch, for pitch shifting.

Pricing for the complete ToolVox suite starts at \$395, which includes 5,000 commercial runtime licenses.

► Razware
(609) 497-1212

Seantec Technologies, Inc. has released Object/PM Control Pack, a control package for IBM's OS/2.

According to the Beachwood, Ohio, company, Object/PM Control Pack offers a dozen control types that extend the set of controls supplied by OS/2 Presentation Manager. These controls include multicolumn list boxes, edit masks, scroll and combo boxes, spin bars and gauges.

All controls in Object/PM Control Pack conform to the PMX architecture that allows the components to be used by most OS/2 programming tools. The Control Pack supports C++ programming environments by adding a set of class libraries that integrate the controls natively into IBM's OpenClass, Borland In-

ternational, Inc.'s ObjectWindows and Seantec's ObjectPM framework environments.

Pricing for Object/PM Control Pack starts at \$99.

► Seantec Technologies
(216) 545-3330

Object Technology, Inc. has introduced Envry/Developer 1.45 for Digital, Inc.'s Visual Smalltalk 3.0.1.

According to the Phoenix company, Envry/Developer 1.45 is a component management system for workgroups that allows the sharing of objects throughout an enterprise by providing a common repository for the management of a workgroup's objects. The product supports Digital's application packaging technologies, Parts Workbench and Smalltalk Link Libraries.

Envry/Developer 1.45 is available on Mi-

crosoft Corp.'s Windows and Windows NT and IBM's OS/2 clients. It is also available on Novell, Inc. Banyan Systems, Inc., Microsoft's Windows NT, Sun Microsystems, Inc.'s SunOS and Solaris, Hewlett-Packard Co.'s HP 9000 and Sequent Computer Systems, Inc. servers.

Pricing for Envry/Developer 1.45 starts at \$3,000 per client or server for new users. ► Object Technology
(602) 222-9519

Product alert

Imagine Software, Inc.'s Imagine, a custom control for Visual Basic, now supports Mitek Systems, Inc.'s QuickStrokes KCR imaging engine. Users can now use Imagine to access high-end handwriting recognition with minimal coding. Cost: \$2,300. Imagine Software, Silver Spring, Md. (301) 588-8411.



PureVision, a product that lets developers use the Internet to measure the external user testing of software programs.

According to the Sunnyvale, Calif., company, PureVision monitors the function and use of software beta versions running at user sites. It collects this information and relays it back to the software supplier over the Internet.

PureVision tracks usage and crash-related information and provides statistics on features used, hours tested, runs per test site and number of unique crashes.

PureVision includes embedded object code insertion technology to take measurements and collect application data while the application is running. This information is sent back to the developer via the Internet.

Pricing is based on the number of testing sites per concurrent test project. The standard price for one project with 11 or more remote testing sites is \$75,000.

► Pure Software
(609) 720-8200

Progress Software Corp.'s Crescent Division has announced Enquiry 1.0, a client/server development tool.

According to the Bedford, Mass., company, Enquiry 1.0 lets Visual Basic programmers visually build forms and queries without coding.

Users can graphically manage the SQL query, control the layout process and see the result of their queries. They can also see how the data is presented to users in either free-form or grid representations. Enquiry 1.0 supports Visual Basic 3.0.

COMPUTERWORLD AUGUST 7, 1995

OBJECT WORLD

And the winner is... everyone who comes to Object World!

Do you know who's developed the world's best end-user applications using OT? Find out during Computerworld's Object Application Awards Ceremony at Object World, San Francisco.

This must-be-there event will be hosted by industry luminaries Steve Jobs of NeXT Computer and Gary Beach of *Computerworld*. And it takes place on Wednesday, August 16, at 6:00 p.m., followed by a reception sponsored by IBM.

This is your chance to see how OT's pacesetters are achieving extraordinary business results by putting object technology to work in real-world applications. And discover why so many companies are racing full speed ahead into object technology.

Of course, this is just one reason to head for Moscone Hall, August 15-17.

Don't miss the Distributed Applications Showcase.

Is OT the best way to build distributed applications? Object World exhibitors think so. And they're willing to share their latest tools, services and customer applications with you. Be there to see firsthand how leading companies approach the challenge of building distributed applications. And see the OMG CORBA 2.0 specifications in action for the first time. Learn from those who are putting OT to work right now!

Get a FREE Exhibits Pass.

Whether you sign up for the full Conference Program or take advantage of our offer for a FREE Exhibits Pass, you'll walk away a winner at Object World San Francisco.

Your FREE Exhibits Pass is your ticket to see hundreds of new products and services firsthand. Attend seminars put on by Object World exhibitors and the OMG. And hear keynote addresses by industry leaders like Colin Cook of Citibank and Dr. Gerald Held of Oracle.

You'll also get a FREE Program Guide and Buyers' Directory, a *Distributed Computing with Objects* diskette, and valuable coupons you can redeem for products and services—only at Object World.

That's all in addition to the Live Distributed Applications Showcase and the Object Application Awards Ceremony! Plus the California Wine Tasting Reception!

Object World San Francisco is definitely a win-win proposition.



AWARDS

Computerworld recommends Object World!

"Object World San Francisco has fast become the largest all-OT show in the nation, and it's truly your best forum for learning how to make the most of object technology. If OT is important to your organization or your career, Object World is the place to be."

"For the fourth year, we're proud to sponsor Computerworld's Object Application Awards Ceremony honoring the world's best uses of object technology. We hope to see you there to applaud the winners!"

Bill Lohrman



HOURS AT A GLANCE

Exhibit Hall Hours:

Tuesday August 15 11:00 a.m. - 6:00 p.m.
Wednesday August 16 11:00 a.m. - 6:00 p.m.
Thursday August 17 10:00 a.m. - 2:00 p.m.

Wine Tasting Reception:

Tuesday August 15 5:00 p.m. - 6:00 p.m.
Application Awards Ceremony:
Wednesday sponsored by IBM
Wednesday August 16 starts at 6:00 p.m.

Object World is sponsored and produced by:

COMPUTERWORLD IDG
The Computer Week

Attend a FREE Conference Session!

See the attached coupon for details on FREE admission to the in-depth Conference Sessions of your choice at Object World San Francisco.

For FREE admission:

Call 1-800-225-4698, ext. 11
or World Wide Web Server:
Address: <http://www.omg.org>
Select: Object World San Francisco

UPDATE

NO. 11



AUGUST 15-17
SAN FRANCISCO

Call 1-800-225-4698, ext. 11, for your FREE admission.

YOU WAKE UP REALIZING
YOU'RE
OF A MADCAP,
DECENTRALIZED WORLD.



AND YOU SAY TO YOURSELF, WHAT A WONDERFUL DBMS.

Introducing Microsoft® SQL Server™ 6.0. You want to push information out to the people who need it. The problem has always been, how do you get out of the way without sacrificing control over the accuracy and security of the data? The answer is Microsoft SQL Server 6.0. It's the powerful client-server database platform for creating a balance between centralized information management and user empowerment.

SQL Server 6.0 really delivers enterprise performance. To begin with, it's fast and scalable. It also has a new parallel architecture that adapts to the size of your workload and can handle databases of 100 gigabytes or more on industry standard server hardware. And with its built-in distributed management framework and new SQL Enterprise Manager administration tool, you can administer every server from one central location,



giving you control while helping lower on-site operational costs. SQL Server 6.0 is also the first DBMS with built-in data replication services you

can control graphically. With a drag-and-drop interface that lets you replicate information across multiple servers anywhere in the enterprise. The fact that these features are built-in is important too. It's one of the reasons our DBMS has the lowest overall cost of ownership. After all, the more we include, the fewer add-ons you have to pay for and struggle to integrate. As for ease of use, no other DBMS comes close. SQL Server 6.0 can be installed in less than 30 minutes with easy graphical tools. And because

it's tightly integrated with familiar desktop applications, users can access and analyze corporate data in a format they're used to. Which means more productivity for them, and less need for help from you.

Bottom line, Microsoft SQL Server 6.0 can help shoulder the burden of managing a distributed computing world. If you want more information, give us a call at (800) 508-8452, Dept. U6W. Or visit the BackOffice section of our website at <http://www.microsoft.com>. Either way you'll be provided with plenty of reasons for leaping out of bed come morning.

Microsoft

WHERE DO YOU WANT TO GO TODAY?

Microsoft SQL Server 6.0 is now available at Corporate Software (800) 808-1667, Egghead (800) EGG-II23, Software Spectrum (800) 824-3323 and Softmart (800) 243-6292 ext. 817, and other resellers near you.

In Canada, call (800) 563-7048. ©1995 Microsoft Corporation. All rights reserved. Microsoft and Where do you want to go today? are registered trademarks of Microsoft Corporation.

SNA for TCP/IP

INTRODUCING

Swift™

**Swift Includes 8
Terminal Emulators
and TCP/IP**

IBM 3270
IBM 5250
DEC VT320
TeleVideo 950/955
Wyse 50/60
SCO ANSI
AT&T 3B6
TTY



**NEW Mainframe & Minicomputer
Emulation Applications**

Are You Moving To TCP/IP?

Your PCs can continue to access host systems as you transition to a TCP/IP internetwork.

Swift combines 8 products to reduce the cost of host connectivity. If you need to access a variety of host systems, Swift offers all of the popular terminal emulators in one integrated package so you do not need to purchase multiple products. Use one product to connect to your IBM mainframes, AS/400s, and UNIX Systems. Swift supports direct SNA network connections, SNA gateways, async dialup and TCPIP. Upgrade to NetManage Chameleon Desktop™ for a full suite of TCPIP applications for Windows that let you Network Your Desktop To The World.

**Special Trade-In Offer,
Upgrade** Attachmate Extral, Rally!, Enterprise, Wall Data Rumba, or DCA iWW to Swift **for only \$125*.** Call NetManage to find out how!

* Limited time offer until September 30, 1995.
Valid in U.S.A. and Canada only.

NETMANAGE™
(408) 973-7171

e-mail: sales@netmanage.com
World Wide Web: www.netmanage.com

Offer


**FROM THE
DEVELOPERS
OF
CHAMELEON®**
TCP/IP Applications
for Windows

Management

Inside

EXECUTIVE TRACK, page 76

CALENDAR, page 77

JOURNAL OF BUSINESS



Illustration by Tom Pichot

Increased competition has outsourcing vendors scrambling to sign up clients for the long haul. The result is an opportunity for IS to get the upper hand in its contract terms.

AS ONE OF A SMALL but rapidly growing number of attorneys who handle outsourcing contract negotiations, John Halvey knows how important it is to keep your skills current.

In just the past 24 months, Halvey, a partner at Milbank, Tweed, Hadley & McCloy in New York, has seen a sea of change in the way outsourcing deals are structured. The current focus on core competencies, the outsourcing industry's maturation and more realistic expectations from client companies are forcing dramatic changes in the world

of outsourcing contracts.

And Halvey, who represents information systems managers, knows that understanding the legal changes in outsourcing deals means the difference between a happy relationship and an unqualified disaster. This is especially true when users are anxious to get the show on the road — a sentiment vendors encourage.

"Because of competition, vendors are in a bigger rush than ever to close," says Harry Glasspiegel, a partner at Shaw, Pittman, Poitevin and Trowbridge in New York. "They don't want clients shopping around, getting outside legal advice. They may sweeten up the deal in exchange for a sole-source discussion."

And what sweeties are vendors offering? More favorable payment schedules for users, protection and retraining for displaced personnel, disaster recovery protection and a share in any new revenue or savings benefits.

There is much that is new in the outsourcing marketplace to make life a little easier for outsourcing client companies, Halvey says. There is more information, more viable vendors and better legal help. In turn, clients can be more choosy about what they're looking for — and looking to avoid.

The user community is much more sophisticated. They've learned through experience where trigger events are that can cause trou-

ble," Halvey says.

Lawyers therefore advise users to take time to assess current and future IS needs before entering any deal.



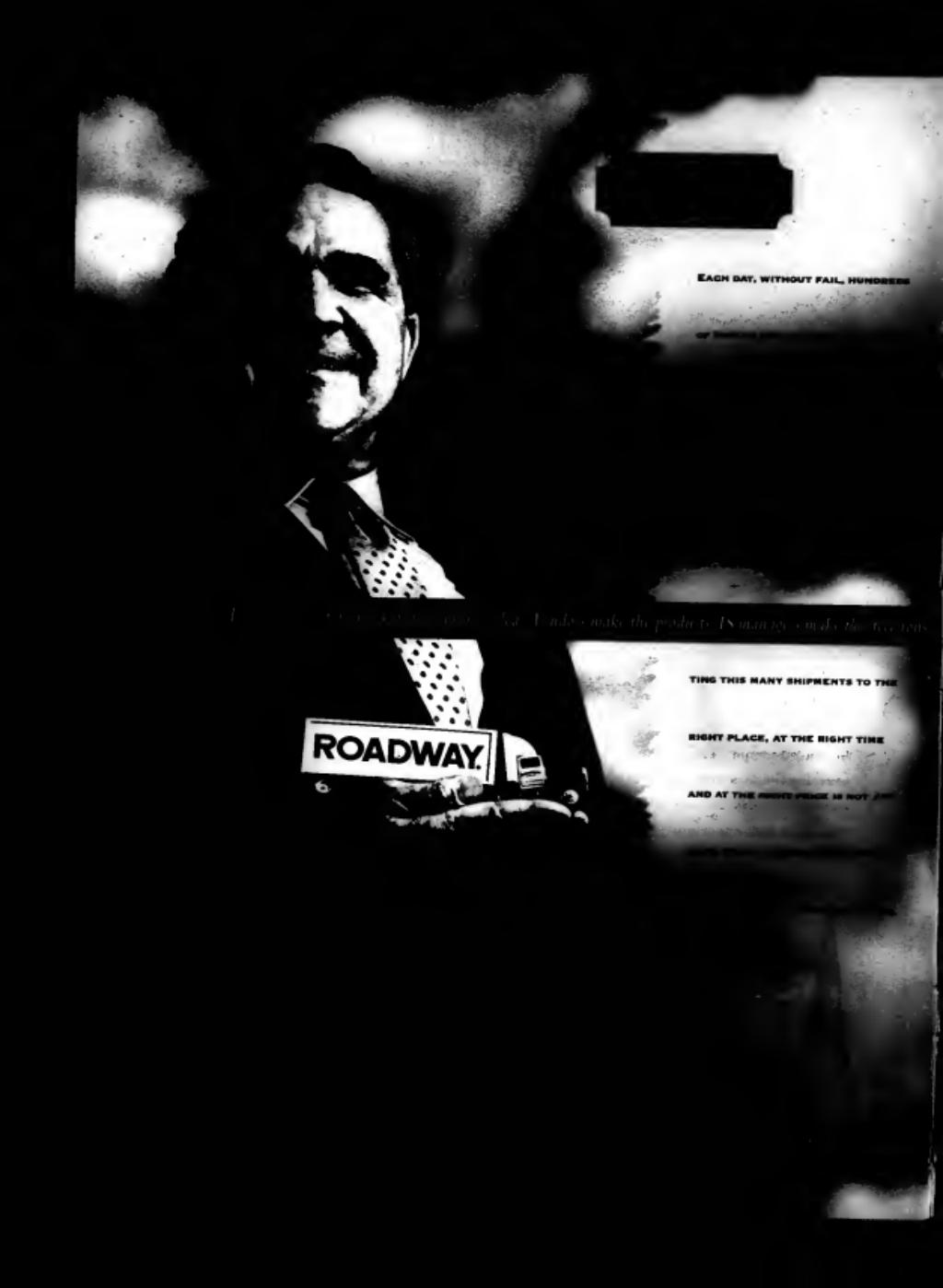
Protect your former people

Contracts now include plans for displaced personnel, including provisions for retraining, placement assistance and compensation.

Recent litigation has led to a greater focus on human relations issues, according to Glasspiegel. The most important issues deal with protecting employees who are displaced or transferred to the outsourcer.

User companies can include provisions regarding displaced key personnel, Glasspiegel says. "They make provisions that these personnel will be retained by the vendor company on their account, not switched to a different account and not terminated for a certain period of time."

Hard bargains, page 73



EACH DAY, WITHOUT FAIL, HUNDREDS

OF BUSINESSES RELY ON ROADWAY'S
EXPERTISE AND EXPERIENCE TO GET THEIR PRODUCTS WHERE THEY NEED TO GO.



TING THIS MANY SHIPMENTS TO THE

RIGHT PLACE, AT THE RIGHT TIME

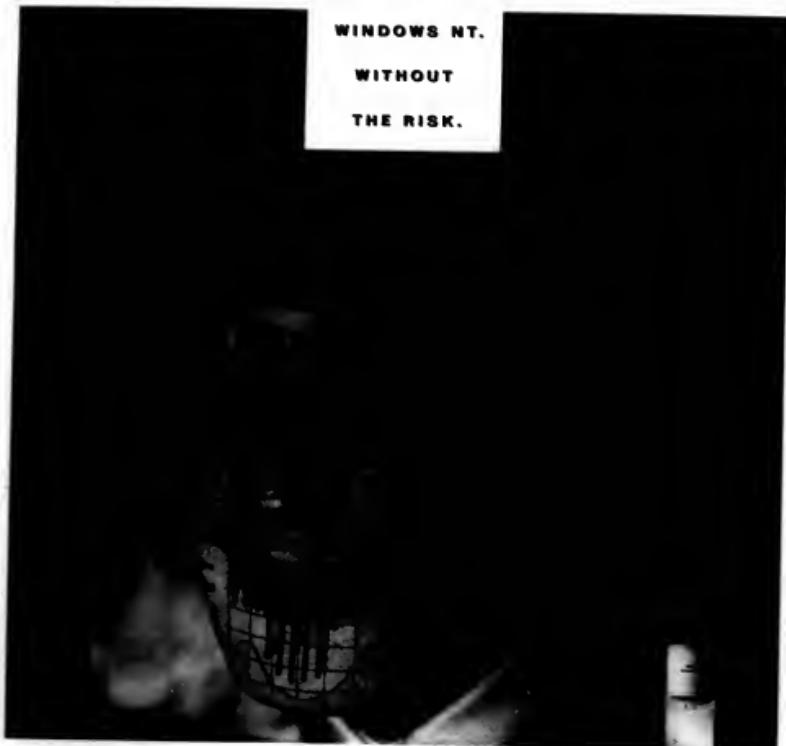
AND AT THE RIGHT PRICE IS NOT JUST



An Uncommon
Experience

INPUT WORLD
The New IS

THE
PERFORMANCE
OF RISC AND
WINDOWS NT.
WITHOUT
THE RISK.



The NEC RISCserver™ 4200 was designed to protect your data in business-critical applications. We gave it internal RAID, UPS, an integrated service modem, and ECC memory—all of which ensure superior dependability. But equally as important is the MIPS RISC architecture itself—the same

SEE, HEAR
AND FEEL THE
DIFFERENCE.

NEC

platform Microsoft used to design Windows NT™. Add to that the scalability of NEC's MultiRISC™ architecture, and you have some powerful reasons to consider the RISCserver 4200. To try the RISCserver 4200, risk-free* for 60 days, call 1-800-709-8434.

RISCserver, MultiRISC and See, Hear and Feel the Difference are trademarks of NEC Technologies, Inc. All other trademarks and registered trademarks are the property of their respective owners. For information via facsimile, call 1-800-888-0176 and request doc # 87714720. © 1990 NEC Technologies, Inc. *Subject to acceptance in NEC's Try and Buy program. Some restrictions apply. Key #98071

Outsourcing contracts

Hard bargain

CONTINUED FROM PAGE 69

And of those who are not retained on the user's account, the user company can require that the vendor company return them for other assignments or provide them with placement assistance for their next job.

"If you are dealing with unions, you obviously are going to have to look at whatever special provisions that makes in the contract," Glasspiegel adds, "and be sure that those provisions are carried over in any outsourcing agreement."

A user company also has certain responsibilities regarding basic employee needs, Glasspiegel says.

"Legally, you are obligated to ensure that your original severance agreement with your employees is transferred to the vendor company," Glasspiegel says. This means making sure these former employees "have the same sort of arrangements for severance and benefits that they would have had if they were still directly in your employ."

Even before the contract goes into effect, "there are certain legal obligations in entity your personnel when you are planning to make a major change," Glasspiegel says.

"You are obligated when the process of outsourcing IS has proceeded far enough that you are making definite decisions to tell affected personnel in general terms what it is you are considering and how that will affect them. We advise all clients to be as honest and straightforward with personnel as possible. And it is our experience that companies want to deal in good faith with their staff," Glasspiegel says.

Be ready when disaster strikes

Outsourcers are being required to keep the user's business up and running, come hell or high water.

Recent national events have altered the face of "force majeure" provisions. These are so-called "act of God" clauses — what happens when forces beyond the control of either party come into play.

"They've been getting a lot more focus," Halvey says, "because there have been hurricanes, earthquakes, bombs."

The principal protection the client needs to cover those kinds of disasters are — quite simply — plans to keep your business up and running.

"Your goal is to build in specific provisions for disaster recovery," says Allen Grogan, a partner at Blanc, Williams, Johnston and Kronstadt in Los Angeles. "Make sure the vendor has in place a disaster recovery plan and facilities. The client needs to know that if a disaster hits one facility, your work can be transferred to another data center so that your business can keep going."

Whether the outsourcer provides the disaster recovery function or it turns subcontracts out that function, Grogan says, "The client should think through the problem and work out a solution. Then you should actually have a dry run to see that in case of a disaster, how that

problem can be solved — sort of a fire drill — to see if the vendor can get you up and running and how long it takes."

And if the vendor is unable to provide disaster recovery protection? Grogan says the client can try to negotiate provisions that would allow it to collect for damages.

"Vendors will resent that," Grogan says. "In any case, your principal focus should be on having a plan to work, not worrying about damages. If there's a disaster of that magnitude and the recovery plan doesn't work, collecting damages should be the least of your problems. You could be out of business."



Get your fair share of the pie

Savings isn't the driving force behind most outsourcing deals, but users should benefit from any revenue or savings the vendor gets.

"More and more of these deals are driven by a strategic reason, the desire to deal with rapid change," Grogan says. "People understand that outsourcing isn't going to solve all their



What users look for before signing

The top factors determining which vendors will receive a request for proposal:

- Reputation

- References

- Existing relationships

The top factors determining which of these vendors will get the contract:

- Ability to offer a complete package (price, reputation, terms, resources and overall support)

- Flexibility and commitment to quality

- Cultural match and similarity

- Additional value-added capabilities

Source: Outsourcing Institute, New York

problems and save them 50% on [information technology] costs. Fewer deals are driven primarily by the desire to save money per se. Savings is no longer the driving force."

Instead, "value-added" has become the new mantra, where the user can share any revenue or savings generated by the vendor as a result of the ongoing partnership.

This is a change Halvey sees as altogether appropriate. "These contracts used to be viewed as technology-based transactions. Really they are financial transactions that happen to involve technology."

There are several ways this is affecting deals. "The user may find the R&D of new software that the vendor may later want to market," Grogan says. "The contract provisions that the user pays for software development costs up front but shares in any revenues the vendor derives from licensing it to other customers."

Likewise, if the outsourcer can save the user money, say, by "reducing staff or consolidating facilities," they will expect to take a cut of those savings, Grogan says. "However, the user needs to have right of approval over reductions in staffing or facilities. These clauses stipulate that savings have to be achieved without noticeable reductions in service."

The contract should define some sort of baseline anticipated cost savings or efficiencies the outsourcing intends to achieve, Grogan says. "For example, say the vendor anticipates that it can reduce your staff by 20%. You may build in provisions that say they can do further staff reductions and still meet all performance obligations and benchmarks, instead of the vendor getting all the benefit those additional cost savings can be shared with the customer. You say to the vendor, 'We can do this, but I want to realize some of those cost savings as well.'"



Take the pay-as-you-can plan

Users can negotiate favorable payment terms in order to be drawn into a long-term deal.

Because general business conditions can change dramatically from one year to the next, many users are reluctant to enter into long-term deals with outsourcers. But increased competition among vendors has forced many to accept more flexible payment terms in order to attract customers to five- or ten-year deals.

Attorneys are therefore advising their user clients to negotiate as flexible a contract as possible when it comes to payment schedules.

"You're dealing with an industry that's undergoing radical change monthly," says Ciara Martin, a partner at Klein and Martin in Los Angeles. "You don't want to have tied yourself into a deal three years ago that will hamper you three years from now in a way you could never have possibly anticipated."

Contracts should allow for the ups and downs of a typical business cycle, Halvey says. "If you're simply paying X dollars a month for 10 years, you're in trouble. If you're willing to go into a long-term contract with a vendor, give the vendor a sense of how you plan to deploy your new resources [over time]. If you know you're going to need 10 fewer functions, you can work that into the contract to take advantage

Hard bargain, page 76



**E OF US
IGITAL
E DECIDED
RE NOT
RKING
ENOUGH.**

Call us perfectionists. But we think you'll be
a lot happier (and more productive) with a faster workstation.

So we created the AlphaStation™
250 system. With it, you'll see

applications like Pro/ENGINEER, Design

Compiler, Unigraphics™ and thousands of others perform as

never before — thanks to the world's

fastest microprocessor, coupled with next-generation systems architecture.

You'll also see price/performance that puts competing machines to shame.

The AlphaStation 250 system is roughly half the price of the comparably

THE NEW ALPHASTATION 250. performing HP
IT'S FAST ENOUGH.

"workstation." And you'll see virtually unlimited horizons, with the ability

to run Digital UNIX® as well as Windows NT™. What's more, an

AlphaStation 250 system delivers superior graphics, multimedia capability

and a no-nonsense three-year hardware warranty. Just like the rest of the

such fast company (we think you are), call us at 1-800-DIGITAL.

Or reach us via our Internet address: moreinfo@digital.com

Hard bargain

CONTINUED FROM PAGE 73

of spikes and valleys in your business."

"The flip side for vendors," Glasspiegel says, "is that they often make significant up-front investments that they expect to regain over time as efficiencies kick in. Vendors may want to be paid at a higher rate in the beginning of the contract term. Sophisticated customers will grant their service providers a reasonable profit but in return are insisting on as flexible an agreement as possible."



Keep your eye on performance

New benchmarks are helping to ensure that vendors keep the customer satisfied.

As firms move into client/server configurations, it becomes more difficult to quantify things such as improved skills and productivity. As a result, a key change in outsourcing contracts is the new focus on business-customer satisfaction — that is, keeping the user's business customers happy.

"Outsourcing firms are now paying much more attention to users," says Harry Wallace, vice president of IT at Campbell Slover Co. in Camden, N.J. "We use customer service surveys for benchmarking. Now we link compensation for project executives to customer satisfaction to help ensure the service providers stay focused and link service levels with the vendor's ability to bid on additional business when other contracts come up."

In order to maintain busi-

Outsourcing contracts

Doing better deals

IS users are negotiating more favorable provisions in outsourcing contracts

Concern of IS users	Provision for outsourcing vendors
■ Displaced key personnel	Keep on user's account
■ Other displaced personnel	Retrain or provide placement assistance
■ Benefits and severance	Offer same terms user had provided
■ Disaster recovery	Ensure user's business will stay operational
■ Lack of disaster recovery	Provide for damages as necessary
■ New savings or revenue	Agree to split with user
■ Changing revenue cycles	Allow for flexible payment schedules
■ Business-customer satisfaction	Establish performance benchmarks
■ Nonperformance of terms	Set penalties for late deliverables
■ Unacceptable error rates	Make credits on maintenance costs
■ Changing business needs	Allow for contract termination

ness-customer satisfaction, contracts should clearly spell out the responsibilities of both parties. Often, performance of one party depends on the other. "Say the outsourcing company is obliged to deliver a report by 5 p.m. every Friday," Grogan says. "Theirability to do so may depend on the customer providing them with data by 3 p.m. The contract needs to spell out what the consequences are — maybe the vendor's timetable slips by some factor if the user doesn't provide the data by 3 — if nonperfor-

mance by one affects the performance of the other. This makes the contract much more complicated and time-consuming because you have to think through all these issues."

"If the vendor doesn't get it to you by 3 p.m., you might include credit that will appear for every half hour that they are late," Grogan says. "Money is really the only thing that will get the vendor's attention. If the information is really important, have the demerits increase, say, \$50 if you're 10 minutes late, but maybe \$1,000 if you're an hour late."

"Some contracts also now have requirements that there be no more than X number of critical errors in an application. Severe errors would be defined as those that seriously affect your business or cause the system to crash. If there are too many of these types of errors, you can call for things like substantial credits on maintenance costs," Grogan says.

Obviously, this has to be tailored to the contract. Specific provisions might also include things such as response-time measurements. For example, the client would take key transactions and define — carefully — response times.

"The contract might say, for example: When an operator sits down at a terminal from the time they hit the Return key a complete screen that answers a customer's query has to be available in a half second, or whatever," Grogan says.

"The important thing is that both vendor and client must be in a position to be able to measure those benchmarks in the real world," he adds.



Have a good escape route

As conditions change during the life of the deal, make sure you can get out of the contract if it's no longer right for you.

The increased flexibility in outsourcing contracts is also leading to more flexible termination terms, according to Glasspiegel. In fact, some vendors are now offering very lenient termination clauses for competitive advantage.

"It can be because a differentiator — those vendors who show

and executive vice president at the airline. He replaces former CIO Barry Simon, who will now focus on Continental's European operations.

Rohn & Haas C., a Philadelphia-based chemical concern, has announced that David A. Stilely, 55, director of information technology, has been named a vice president of the company.

Alexander Consulting Group in Lyndhurst, N.J., has announced the appointment of Elias G. Braverman as director of the firm's national systems group. Braverman was director of information services at American Home Products.

Executive Track

Norwest Corp. in Minneapolis has announced the appointment of Webb Edwards as executive vice president and chief technology officer of its technical services division. Edwards was previously executive vice president and general manager of information systems of First Interstate Bancorp in Los Angeles.

ALEXANDER J. TROTMAN, chairman and chief executive officer of Ford Motor Co.

in Detroit, was recently honored by Gartner Group, Inc. with its 1995 Excellence in Technology Award for executive leadership in information technology. The award was presented at Gartner's ReshapingIT Conference in Chicago. Trotman was honored for his leadership in the company's implementation of an enterprise-wide networked computing environment to streamline design and production of new cars. The "Global Studio" enables engineers in the U.S., Europe and Asia to concurrently share visual information and work on three-dimensional 3D models, resulting in enhanced design control, reduced international travel expenses and shorter design cycles.



Bricker & Associates, Inc., a Chicago-based productivity consulting firm, has announced that Sheena Quish Fryer has been named senior vice president. Prior to the appointment, Fryer was senior vice president and chief information officer at Blue Cross/Blue Shield of Illinois.

Continental Airlines has announced that Daniel P. Garson has been appointed CIO and senior vice president. Garson had previously been chief financial offi-

Management

Calendar

Aug. 13 - Sept. 20

MANAGEMENT

Identifying and Maintaining Business Applications for Networked Multimedia. Chicago, Ill., Aug. 28-29 — A conference addressing key issues in optimizing and maintaining multimedia networks. Seminars will include "Ensuring the Virtual Workplace," "Multimedia Standards" and "Determining the Organizational Requirements for Building a Networked Multimedia Infrastructure." Fee: \$1,195 per person, \$1,085 with three or more attendees from the same company; \$865 per person with five or more attendees. Contact: ICM Conferences, Inc., Chicago, Ill. (312) 449-3860.

The Information Workers Conference. Arlington, Va., Sept. 1-8 — Focus will be on personal privacy, industrial and economic espionage and global information warfare. Contact: Paul Gates, National Computer Security Association, Carlisle, Pa. (717) 258-1616.

1995 International Customer Service Association Annual Conference. Orlando, Fla., Sept. 9-13 — Theme: "In Search of New Customer Service Galaxies." Keynote speakers will include Tom Peters, founder of the Tom Peters Group, and Les Brown, author and television personality. Contact: International Customer Service Association, Chicago, Ill. (800) 593-4572.

IS Expo Fall '95. Anaheim, Calif., Sept. 20-23 — Topics will include the impact of client/server on maintenance, operations, distributed systems management, using remote support, continuous quality improvement in the data center, the data center's changing role, managing help-desk performance and customer expectations and enterprise-wide monitoring. Contact: Association for Computer Operations Management, Orange, Calif. (714) 967-7998.

TECHNOLOGIES

GTS '95 Second Annual Conference, Exposition and Datemarket. Reston, Va., Sept. 5-8 — Focus is on geographic technologies, what works and what doesn't from an organizational and technological perspective. Fees: government, university and nonprofit employees, \$350; students, \$175; all others, \$450. Contact: GTS World, Inc., Conference Division, Fort Collins, Colo. (970) 223-6545.

McLecCon USA '95 Trade Show and Conference. San Jose, Calif., Sept. 6-7 — Focus is on suppliers of technology, equipment, materials and services.

Calendar announcements should be submitted at least six weeks prior to the event and include the title of the event, dates, location, theme or focus, keynote or major speakers, principal topics and a contact person, organization and phone number.

SEND ANNOUNCEMENTS

David Whelton, Associate Editor/Management, Computerworld,
375 Congress Street, Framingham, Mass.
01702. Fax: (508) 875-0553.

AMA offers skills, management courses

Looking to polish your project management skills? Need tips on implementing a disaster recovery plan? The American Management Association (AMA) may be able to help with its fall and winter course offerings.

Professional skills topics include systems analysis and design, negotiation skills, internal consulting skills, information systems project management, writing team examples and effective presentation skills. Information technology topics include using the Internet for business and managing telecommunications.

Management topics include disaster recovery, strategic planning, quality review techniques, achieving excellence, re-engineering IS and strategic outsourcing. Business systems applications topics include integrating systems and electronic data interchange. Project management topics include team-building skills and management skills.

Each course will be offered several times in various cities. For information, contact the AMA, P.O. Box 109, Saratoga Lake, N.Y. 12963 (500) 262-0469.

to the data storage industry. Contact: International Disk Drive Equipment and Materials Association, San Jose, Calif. (408) 730-0322.

Embedded Systems Conference. San Jose, Calif., Sept. 12-15 — For software developers and engineers involved with embedded design. Keynote speaker cartoonist Scott Adams, creator of the comic strip "Dilbert," who will speak on humor in the workplace. Contact: Sherry Nykiel, Miller Freeman, Inc., San Francisco, Calif. (415) 905-2354.

Establishing Security and Combating Financial Cybercrime on the Information Superhighway. Chicago, Sept. 13-16 — Topics will include security requirements for the Internet, threats to financial security in cyberspace and tools for securing electronic commerce. Contact: Ralph Galliard Jr., International Communications for Management, Chicago, Ill. (312) 549-0545.

Client/Server Economics Summit. Washington, Sept. 18-20 — Topics include distributed systems support, real-world advantages of deploying a request-tracking system, applying advanced systems and profiling from emerging technology, controlling the cost of migrating to a client/server environment, networking challenges of client/server and deploying mission-critical systems in a client/server environment. Fee: \$1,000 until Aug. 16; \$1,100 after Aug. 16.

Contact: Mary-Claire Bennett, Client/Server Economics Summit Registration, San Francisco, Calif. (415) 905-2287.

USER GROUPS

SHARE Technical Conference. Orlando, Fla., Aug. 23-26 — Theme: "Connecting to the Future." Keynote speaker: Nicholas M. Desorbo, IBM senior vice president and group executive. Speakers include Paul Gillin, editor of Computerworld, who will discuss "Information Systems

in the '90s: New World Disorder." Fee: \$360. Contact: SHARE Technical Conference Registration, Chicago, Ill. (312) 825-0632.

Manufacturing Execution Systems Roundtable 4. Chicago, Sept. 13-14 — Focus is on improving manufacturing productivity and quality with integrated manufacturing execution systems. Contact: Manufacturing Execution Systems Association, Pittsburgh, Pa. (412) 781-4011.



Find out why Skadden Arps, one of the world's largest law firms, trusted Lawson at <http://www.lawson.com> or 1-800-477-1357.



© 1993 Lawson Software

IT'S LIKE INVESTING IN BUSINESS SOFTWARE. IF YOU'RE SMART, YOU ONLY DO IT ONCE.

Sure, you might get lucky. On the other hand, you've got a lot to lose. That's why, when purchasing software, you'd better know exactly what you're getting into.

For example, Lawson Software supports all the leading client/server platforms. So no matter what hardware system you move to next, we'll be running

on it. And you can migrate through technological changes and upgrades without additional licensing fees.

Finally, twenty years of experience has resulted in some pretty amazing functionality. Ask our users.

Lawson Software. For accounting, human resources, distribution and materials management. We're making it as painless as possible.

LAWSON

THE LAST TIME YOU'LL CHANGE
SOFTWARE COMPANIES.

Re-engineering the Workplace

SPECIAL QUARTERLY REPORT ON RE-ENGINEERING

FLUSHED with SUCCESS

BY JOSEPH MAGLITTA



'COACH' Pete Rogers of American Standard: 'I'll break your arm if you violate the information technology model,' he jokes.

American Standard recast itself through re-engineering. The company's new shape may be a preview of your tomorrow.

Overhead from page 7

Through re-engineering programs championed by Chairman and CEO Executive Officer Emmanuel A. Kampouris, American Standard has been able to nearly eliminate \$225 million in annual debt payments. Moreover, manufacturing cycle times have been cut from months and weeks to days and hours. The firm, which is partly employee-owned, went public in March.

Wall Street analysts laud the revitalized manufacturer — parent of Trane International, Wilkco and Metal-Standard — as a successful turnaround story.

"They're doing a great job," enthuses Barry Rosenstein, vice president of research at S. G. Warburg & Co., a Wall Street investment firm.

How different is information systems life in a post-re-engineered organization? Look at Pete Rogers' business card and you begin to see that things at American Standard are anything but standard these days.

The card reads: "Vice President/Coach of Change." An unusual title, but one befitting the technology leader of a firm that has no functional departments, page 60

► INSIDE:
Get the latest information on re-engineering tools, events and research

Microsoft Corporation
One Microsoft Way
Redmond, WA 98052-6399



To: Our Customers and Partners
From: Brad Silverberg
Re: THANK YOU!

We are finally at the end of the long journey, and I want to thank all of those who have been our companions. We have completed development of Windows® 95, an operating system that will allow computer users everywhere to get more out of their personal computers. We have been helped by people across the spectrum: from individuals such as John R. Gorman, Chief Information Officer at NASA Johnson Space Center, to Adam Baratz, who is nine years old, to software developers, computer system manufacturers, and many others. We could not have made it without the help we have received from all of you.

A key part of our journey was the Preview Program—the program whereby over a million individuals got to use an early-release copy of Windows 95. It was also a chance for us to learn about the issues that you'll face in your own experiences with Windows 95. I would like to report to you what we have learned.

We learned things about our product that we needed to fix. As a result we have improved setup and our support for your existing software and hardware. Along the way we fixed many bugs that have helped us improve the product.

We also used the Preview Program to test our support capabilities for Windows 95. We have trained hundreds of support engineers and have made arrangements with five companies who will help us provide support for Windows 95. From the size of the initial orders we have seen placed by retailers for Windows 95, it is possible that there may be delays in getting through to our support personnel during the initial weeks. We apologize if you experience any inconvenience and want you to know that we are working hard to minimize this. We will have almost as many people taking calls for Windows 95 as we have taking calls for all our other products combined and will be active on electronic forums to help, too.

But perhaps the most common theme to emerge was that people need accurate information direct from Microsoft to help them evaluate or plan their migration to Windows 95. To address this we have created the WinNews Newsletter, where you can get our best, no-nonsense assessment of:

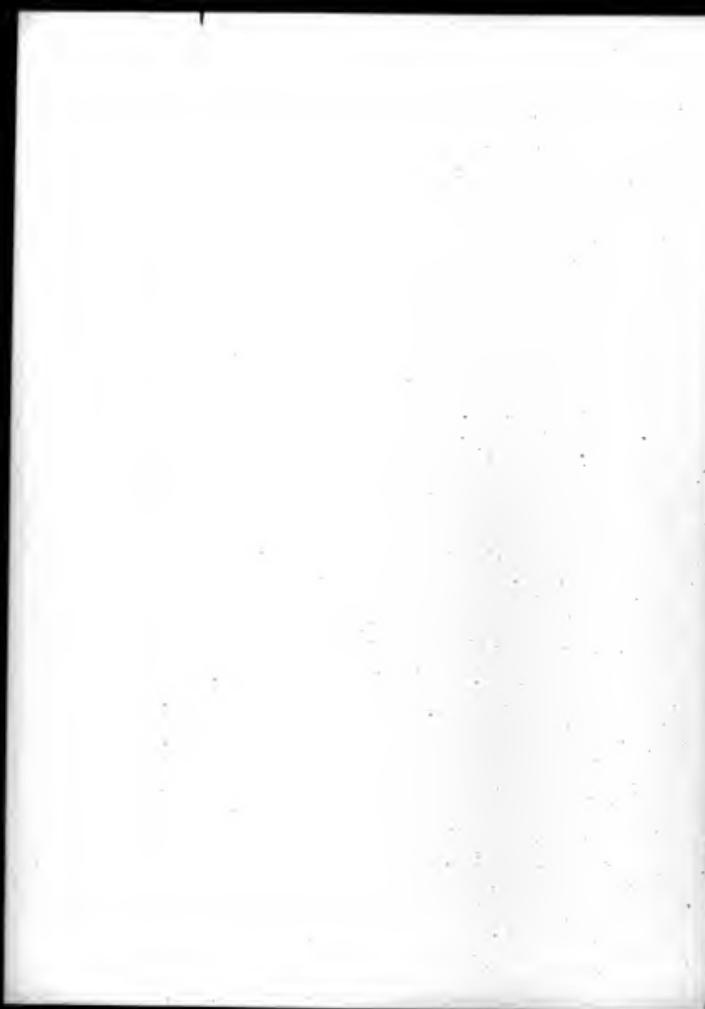
- the strengths and weaknesses of Windows 95
- its compatibility with existing software and hardware
- the best practices and tools to help minimize costs of deployment

To join our WinNews New-letter mailing list, send email to enews18@microsoft.lawnet.com with `subscribe winnews` as the only text in the body of your message; or visit our Windows 95 forums on CompuServe, America Online, or The Microsoft Network, or our Internet web page at www.microsoft.com.

We think Windows 95 is a wonderful product and will be a significant improvement to Windows® 3.1. It has been made immeasurably better as a result of your help.

I, and all the members of the Windows 95 product team, thank you.

Brad Silverberg
Senior Vice President
Personal Systems Division
Microsoft



Success at American Standard

A Fast Roundup of New Products, Ideas and Resources

The U.S. government has begun more than 200 business process re-engineering projects in the past 18 months. Drivers: to lower costs and curb runaway IT projects.

Royal Caribbean Cruises Ltd. In Miami has begun an 18-month business process re-engineering effort aimed at faster, more efficient crew hiring and deployment. Its partner in KMPF Peat Marwick, The new Crew Acquisition and Movement system will save millions yearly, says Iron Stoman, Royal Caribbean's information technology vice president.

OakKosh B'Gosh in Oakdale, Wis., is celebrating its 100th anniversary by re-engineering. Activity-based management is key to major revenue in its manufacturing, administration and distribution areas. Goal: slash production time in half — to 12 weeks. Contact: (212) 886-0002.

RESEARCH

Nearly 75% of 400 large North American firms polled by Ernst & Young will increase their number of business process re-engineering projects through 1996.

Average in 1994: 3.6 projects.

New product development is the next major process targeted for business process re-engineering efforts, according to 90 chief financial officers at large companies polled by Ernst & Young. Another Ernst & Young study found that nearly 100 U.S. firms plan to spend \$2.9 billion on re-engineering in 1997.

Outside business process re-engineering consultants are used by 85% of Fortune 500 companies, polled by the Center for Information Technology Management in Mountain Lakes, N.J. Top evaluation criteria: specific process experience, 72%; skills transfer capability, 67%; methodology used, 67%; client references, 63%; fees/cost, 61%; specific individual experience, 60%; and specific information technology experience, 33%. Contact: (201) 536-0260.

EVENTS

The Second Annual National Business Process Reengineering Conference, Arlington, Va., Sept. 18-21. Fees: Contact: (703) 783-0646.

Re-engineering 1995: Success Stories and Impact on the Information Technology Organization, Oct. 15, Liberty Center, R.J. Adams of CIOs and technology executives. Contact the Computer Power Group at (804) 494-6222.

ON-LINE

World Wide Web page: WARIS Online. A treasure trove of books, education programs, consulting, listings, conferences and other Web pages. Posted by the World Re-engineering International Association (<http://www.world.com/waria>).

Discussion list: IPRNL-Digest. A little heavy on tool talk, but a hopping international forum for debate on re-engineering topics from Integration Definition Method to consultants' traps and errors. To subscribe, send E-mail to LISTSERV@HNS.TW.TUDELFT.NL. Message: sub lprl yourname.

Discussion list: Business Process Management and Improvement. To subscribe: majordomo@quality.org. Message: subscribe lpmr yourname.

CONSULTANCIES

Symmetric, Inc. and Science Applications International Corp. formed a partnership aimed at bringing business process re-engineering and fast system delivery to finance, banking and insurance firms worldwide. Contact: (617) 843-3290 or (813) 482-2188.

Anderson Consulting combined telecommunications, cable, wireless and satellite businesses into a telecommunications industry group. Partner Larry Levitt will lead the 3,000-consultant practice. Contact: (813) 880-0069.

James Martin & Co. in Boston, Va., formed a utility industry practice. A new pharmaceutical unit was created last December. Contact: (703) 630-8804.

Coopers & Lybrand High Tech Consulting in Boston is now headed by Alex Bevers, former business process re-engineering and quality leader. Contact: (813) 478-6222.

Unisys, Inc. is staffing up its Worldwide Enabling Change Practice in Blue Bell, Pa. The unit supports Unisys' business process re-engineering, outsourcing and integration efforts. Headed by Ronald Stoen, formerly of G.E. Aerospace, Martin Marietta Corp. and the U.S. Army. Contact: (215) 988-8846.

QUOTES

"For a lot of CEOs — provided they rise to the challenge — re-engineering is a ticket that gets them a seat at the top table. The ones who don't get a ticket on the night train." — Michael Hammer, Hammer and Co.

"Questions we might ask: Do these undergoing change have necessary talent? Skills? Time? Resources? Support?" — Keith E. Forman, Deloitte & Touche

RESOURCES

Research report: "Process Product White Vol. 4." Detailed listing, analysis of latest work management technologies and business process re-engineering tools. Cost: \$225. Internet: miers.onix.co.st; or call 44-181-332-0230.

Book: After Re-engineering: Organizing for Growth by Richard K. Lachance. Guidelines, examples, insights. Contact: (800) 828-6785.

List: Re-engineering benchmark services, "Systems Reengineering Economics," February 1995. Contact: (813) 436-8100.

Book: The Change Management Toolkit for Reengineering by Gary McNamee, et al. How-to book includes checklists, techniques, time lines. Cost: \$49.95. Contact: (800) 382-3032.

Book: Technologies for Business Process Redesign by Lynn C. Kuback. Overview of concepts and implementation. Cost: \$34.95. Contact: (800) 225-8945.

Magazine: Special business process re-engineering issue, American Programmer, June 1995. Contact: (813) 846-4702.

Videos: "The Reengineering Roadmap" and "Reengineering the Future," by Raymond L. Bergeron. 5-Minute American Management Association video give solid foundations in how-to and what it is. Preview \$50, rent \$150, buy \$495. Contact: (800) 225-3218.

Book: The Workflow Imperative by Thomas M. Koenigstein. Where workflow meets business process re-engineering in the real world. Cost: \$32.95. Contact: (800) 825-0600.

Book: Reengineering Management by James Champy. This sequel argues that bosses better change their acts. Cost: \$28. Contact: (800) 521-2761.

Magazine: Benefits & Compensation Solutions, June 1995, in a Technology Special Report. It covers human resources, benefits and compensation applications; client/server technology and business process re-engineering for human resources functions. Contact: (800) 743-9101.

Magazine: ZAI Communications. This special issue focuses on use of ZAI Institute, Inc.'s software in business process re-engineering. Contact: (918) 677-0000.

White Papers: "Distributed Object Computing for Business" and "Integrated Project Support Environments" by the Technical Resource Connection (TRC). They are short, clearly written primers that put object technology meat on business process re-engineering bones. See TRC's Web page at <http://www.trcinc.com/> or call (813) 693-9984. — Compiled by Joseph Magill



How do you take 30 orders, fax 30 receipts, and work with 3 foreign offices before you wake up?

Do business anywhere,
anytime with a global
network.



It's the new office. But it's not what you think. It's an office without walls or desks. Without the rules of time or place. It lets you work the way you want to, instead of how you have to.

It can all happen, with AT&T's INTUITY™ Multi-Media Solutions. An ever-expanding communications framework that plugs you into all the latest technology as it happens.

INTUITY Solutions let you market to your customers in innovative ways. Free you from routine tasks. Open your office to the rest of the world. And to the future.

Use voice response
to let customers
help themselves.



AT&T can do all these things for you today. And with the integration of fax, interactive voice, data and video, you'll be able to do things you never imagined.

Call AT&T Global Business Communications Systems at 1800 325-7466, ext. 537. Find out how INTUITY AUDIT™ Solutions and INTUITY CONVERSANT™ Systems can help set you free.

M&I Where innovation leads



In Depth

SWAMP thing

(coming to a data center near you)



No longer a fantasy, the merger of the biological and computing sciences is happening like never before in areas such as DNA computing, bacteria-based computer memory systems and electronic microchips designed to mimic human brain cells.

BY THOMAS HOFFMAN

It has festered in the earth's salt marshes for more than 3.5 billion years, a bacterium that has managed to thrive under the worst possible conditions in spite of everything that man and nature have thrown at it.

Now, millions of years after dinosaurs last ruled the earth and man has taken its place at the top of the pecking order, this bacterium is rising up from the dark, briny mass to unleash its fury on the computer industry.

Call it swamp thing. Or call it an optical memory system powered by marsh-dwelling bacteria.

It's one of the many examples of how biotechnology and computational sciences are merging like never before. These next-generation systems — which follow technologies such as artificial intelligence, natural languages and neural networks — include DNA computing, genetic algorithms and computer chips embedded with human brain cells.

Since AI never really met the hype promised for it 10 years ago, most biocomputing proponents are taking an understandably guarded approach to touting their success.

"We don't have enough results to talk quantitatively about our research yet," says James J. Hickman, a surface chemist at Science Applications International Corp. in McLean, Va. The company has been working with the Naval Research Laboratory in Washington to integrate organically grown neurons from laboratory rats into solid-state electronic devices.

Cooperation between government, industry and university research labs could help make prototype bioelectronic devices attainable within three to five years, according to Hickman.

Despite the guarded optimism, there's still a great deal of excitement about the potential benefits to be realized from the combination of biological and information technologies. For example, Leonard Adleman, a computer science professor at the University of Southern California, stunned the scientific community last fall when he described how DNA

Swamp thing, page 86

SWAMPing

CONTINUED FROM PAGE 83

strands can be used more efficiently than supercomputers to tackle mathematical calculations.

Although Adelman's DNA computers have performed individual tasks slower than supercomputers — 35 minutes on average — they use billions times less energy than conventional computers and can handle billions of calculations at once using trillions of DNA molecules.

He has also discovered that a DNA computer memory bank containing a pound of DNA molecules can store more information than the memories of all the computers that have ever been built. The molecules are suspended in roughly 1,000 quarts of fluid in a one-square-yard tank.

Last last year, Adelman reported in *Science* magazine how he had used DNA to solve a version of the traveling salesman problem. A salesman has to visit seven cities; each city is connected by a

Because bacteriorhodopsin, a swamp bacteria, takes on different readily detectable states when exposed to light, it can act as a switch in protein-based optical computers. Cubes of the bacteria can hold close to 1T byte of memory.

one-way road to two other cities. What is the shortest path for the salesman to follow? Using DNA strands in test tubes, Adelman was able to come up with an answer within a week. The dilemma has been conventional computers years to solve.

Adelman has had preliminary discussions with IBM and a few other vendors about the commercial viability of DNA computing, which is at least five years from reaching the market, according to a USC spokesman.

"It won't replace a PC [because] it's not good for number problems," says Eric Baum, a senior research scientist at NEC Research Institute in Princeton, N.J. But DNA computers are good for large, complex problems "that you couldn't solve any other way," Baum says.

The brain makers

Hickman and his partners at the Naval Research Laboratory aren't the only ones investigating computer-brain simulations. For example, Nestor, Inc., in Providence, R.I., began developing an Advanced Research Projects Agency-sponsored chip in 1990 that's designed to mimic the human brain.

The chip contains 1,024 silicon "neurons" that have performed up to 57 billion instructions per second on a 33-MHz

circuit. That compared favorably with a 100-MHz Intel Corp. Pentium chip that, with no pipeline constraints, can run up to 200 million instructions per second, according to Mark Laird, a project engineer at Nestor.

Nestor began shipping its NJ 1000 chip in single-chip Industry Standard Architecture development cards last June. The company is readying the chip for four-chip Peripheral Component Interconnect bus cards that shipped late last month and VME cards that will begin shipping this month, Laird says.

Neural networks — a combination of hardware and software technologies designed to mimic the workings of the human brain — continue to make inroads in commercial computing. For example, the Chicago Police Department is using a neural network system to analyze data on its 12,500-person police force to identify police officers who are at risk for misconduct. The neural network software has identified 91 officers at risk, roughly half of whom were already enrolled in misconduct counseling programs.

Neural network software have also gained widespread acceptance by Wall Street brokers to predict changes in the stock market, by banks to analyze data to detect credit-card fraud and by airlines to predict how many passengers

will show up for flights in order to optimize their loads.

Neural network technologies are also being applied to handwriting and speech recognition systems. For example, Lexicor, Inc., a Palo Alto, Calif.-based division of Motorola, Inc., offers handwriting recognition software called Lexieus Longhand. Longhand is a Windows-based system that relies on neural network technology to help recognize common words, proper words and specialized vocabulary.

From the deep

In the Syracuse University optical memory experiments, a protein called bacteriorhodopsin is encapsulated into an optically transparent polymer. Bacteriorhodopsin is found in the purple membrane of a salt marsh-dwelling microorganism known as Halobacterium halobium. The rhodopsin protein, found in human eyes, lets us see in dim light.

Using laser beams, scientists at the university have been able to write and read information into and out of the protein, according to Robert R. Burge, a chemistry professor and director of the Center for Molecular Electronics at the university. He is also research director for the New York State Center for Advanced Technology in Computer Applications and Software Engineering at Syracuse University.

Burge began working on his research in the late 1970s at the University of California at Riverside. At that time, reports were circulating that the Soviet Union

was trying to leapfrog Westerns research with its own rhodopsin storage efforts.

He says that protein-based optical computers and memory should reach the commercial market in the next three to eight years, depending on how quickly relative technologies such as charge coupled device (CCD) and charge integration devices (CID) can be brought to the market at affordable prices.

CCD arrays, which are used in the lenses of video cameras to convert light into electrical signals, are relatively inexpensive at \$50 to \$100. But higher-end CCDs

— such as those in the 1,024- by 1,024-pixel range — still cost several hundred dollars and are currently overpriced for commercial use with bacteriorhodopsin, Burge says.

The "swamp thing" may be in your data center by the turn of the century, but some in the industry are still skeptical as to when — if ever — other biological computing devices such as DNA computers will become commercialized.

Hoffman is *Computerworld's* senior editor, user strategies in the Mid-Atlantic Bureau.

Tell me about it

Sci-fi authors sound off on the merger of biotechnology and computer science

H. P. NEUWIRTH

The Breed Makers: Genius, Ego and Greed in the Quest for Machines That Think (Saam Publishing, 1994)

...continued from page 1

Any new technologies as advanced as organic [substances] and biological [products] fall into the realm of either past technologies that promised to be wonderful but got shot down because of the hype — or AI, natural language, neural networks.

DNA computing and genetic algorithms also lend themselves to what I call the "guru" effect or "save the world" computing. But I think these have uses and will be incorporated into other applications, just as AI has been. They won't take the place of database searches and word processing; they'll have a much more generic use such as number crunching.

WILLIAM GIBSON

*Author, *Neuromancer* (Ace/Poisoned, 1984)*

Our great-grandchildren won't even know that they have computers because they will be computers. As the interface [between man and computer] evolves, the computer itself will become invisible.

PIERRE ANTHONY

*Author, *Electricity* (Acet/Poisoned, 1995), *Total Recall* (Avon Books, 1994)*

I'm intrigued by this crossover, the way biological systems are being used to solve problems like the traveling salesman's fastest route. Of course, there are ethical issues at stake here. If you start killing people and putting their brains into machines, then you'll have a real ethical problem.

BRUCE STEWART

*Author, *The Hacker Crackdown, Law and Disorder on the Electronic Frontier* (Bantam, 1995)*

I was at a brain-mimic conference [about technologies that mimic brain functionality] in Munich recently where there were discussions surrounding computational neurology. It's difficult to get computers to behave like the human brain, particularly since neurons have a tendency to stream from place to place. I think [biocomputing] is all theoretically possible, but it's like what everyone once said about AI: "Hey, we'll have computers that are smarter than we are by 1997." It's a lot like the work being done with skin cells, where you can have a mole like a rhinoceros and change colors. It's philosophically interesting, but I don't see any red-hot business applications coming out of this. — Thomas Hoffman

COMPUTERWORLD

Professional Courtesy Voucher

Yes, I want to receive my own copy of COMPUTERWORLD each week. I accept your offer of \$39.95* per year - a savings of \$8.05 off the basic subscription price.

First Name _____ M _____ Last Name _____
Title _____
Company _____
Address _____
City _____ State _____ Zip _____

Address shown: Home Business New Renew Basic Rate: \$48 per year
*U.S. Only. Canada \$55. Mexico, Central/South America \$150. Europe \$295, all other countries \$295.
Foreign orders must be prepaid in U.S. dollars.
For faster service, fax your order to (508) 626-2705

SAVINGS STATEMENT

Regular Subscription Price

\$48~~00~~

Your Special Rate

\$39.95

Your Savings

\$8.05

E4H5-2

COMPUTERWORLD

Professional Courtesy Voucher

Yes, I want to receive my own copy of COMPUTERWORLD each week. I accept your offer of \$39.95* per year - a savings of \$8.05 off the basic subscription price.

First Name _____ M _____ Last Name _____
Title _____
Company _____
Address _____
City _____ State _____ Zip _____

Address shown: Home Business New Renew Basic Rate: \$48 per year
*U.S. Only. Canada \$55. Mexico, Central/South America \$150. Europe \$295, all other countries \$295.
Foreign orders must be prepaid in U.S. dollars.
For faster service, fax your order to (508) 626-2705

SAVINGS STATEMENT

Regular Subscription Price

\$48~~00~~

Your Special Rate

\$39.95

Your Savings

\$8.05

E4H5-2

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO 1131 FRAMINGHAM, MA

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTERWORLD

CIRCULATION DEPT
375 COCHITUATE ROAD
FRAMINGHAM MA 01701-9494



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO 1131 FRAMINGHAM, MA

POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTERWORLD

CIRCULATION DEPT
375 COCHITUATE ROAD
FRAMINGHAM MA 01701-9494



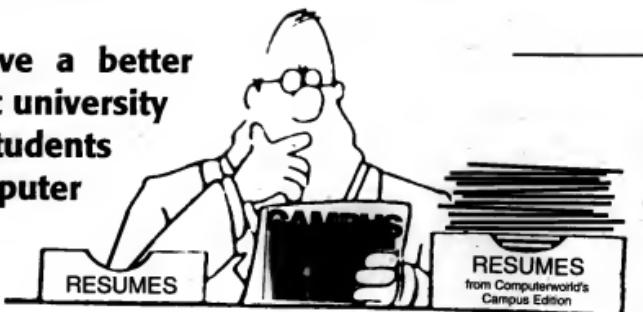
**New
England**
**CORPORATE
TECHNICAL
RECRUITING
CONFERENCE**



October 30, 1995
Newton Marriott, Newton, MA

1-800-488-9204
to register or for more info

Now you have a better way to recruit university and college students planning computer careers:



Computerworld's eighth annual Campus Recruitment Edition

If you recruit top computer students on America's campuses, your message in this special issue will target more of them than any other newspaper or magazine!

Now you can recruit computer talent on campus without leaving your office!

That's because 100,000 copies of this special issue will be distributed to America's best and brightest students enrolled in Information Systems, Computer Science, Computer Engineering, Electrical Engineering, and just about any other computer-related curricula.

Computerworld's Campus Edition works!

Just ask John Nyhan, Director of Recruiting at CSC Consulting who said: "I have found over the years that Computerworld's Campus Edition has been THE vehicle in getting our name and our company exposed to a substantial number of Information Systems students across the country. I feel it is a magazine that is widely read-by the college student and our advertising in it has been successful in getting people to know who we are before we come on campus."

Finally you can cost-effectively reach the quality and quantity of students you need!

And you can do it with just one advertisement in Computerworld's Campus Recruitment Edition! For a rate card reflecting complete campus distribution, call John Corrigan at 800/343-6474 (in MA, 508/879-0700). But hurry... This issue closes September 15, 1995.

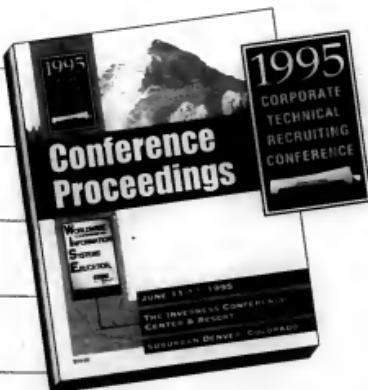


Advertise in Computerworld's Campus Edition today.

**Issue Date: October 31, 1995
Close: September 15, 1995**



Learn Technical Recruiting from the Experts!



If you recruit Information Systems talent and want to get expert advice, you'll want to order the complete proceedings from Computerworld's 1995 Corporate Technical Recruiting Conference, held June 11-14 in suburban Denver. For just \$59 plus \$3.50 for shipping and handling, you'll receive this 220-page book that's packed with over 40 presented papers on subjects including candidate selection, sourcing techniques, diversity, college relations, immigration, and much more. And all papers are written by experts, so you're sure to learn from top presenters in the field.

To order your copy, simply fax or send the coupon below. But hurry, because supplies of this one-of-a-kind tool are limited!

To order, fax this coupon to: 1-508-620-9430

Or send to: Computerworld, c/o Price Lampert Associates,
187 Oaks Road, Framingham, MA 01701

- Please rush me the 1995 Conference Proceedings.
 - I've enclosed my check for \$59 + \$3.50 for shipping & handling, or to pay by credit card please call 1-800-488-9204.
- Please send or fax me information about the 1996 Corporate Technical Recruiting Conference to be held June 2-5, 1996 at the Inverness Conference Center and Resort, suburban Denver, CO.
- Please register me.

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE _____ FAX _____

Computer Careers

Adios!

Why do employees leave? Managers claim rigorous recruiting is to blame, but a quest for a greater challenge is usually the reason.

By William Spain

Folks who are capable of handling the newest gizmos are, by their own accounts, an easily distracted lot. Many are forever ready to discard an outdated employer as quickly as they would an old version of Windows.

A picture emerges of a restless noblesse constantly on the prowl for new opportunities. And, fortunately for them, their need for new challenges is very nearly matched by the high likelihood of their finding them.

While each case is unique, employers and employees seem to agree that the main reason for this constant state of flux is the search for more exciting technical possibilities. Both groups also affirm that money is usually involved to some extent.

Staff view:

Kevin Taylor, 30, is one such wanderer. A recently hired sales engineer at Claris Corp., he left his last IS job at a business publishing company where a headhunter contacted him with promises of big money and opportunity. The deal that lured him away fell through, but he eventually landed on his feet at Claris. Over the years, Taylor has voluntarily left jobs because they lacked variety, had too much stress or didn't pay enough. He has also been laid off.

"Generally, I won't leave a job unless I get a really good opportunity somewhere else," he says. "For me, a better opportunity is defined by what the job entails: [What] is the company, and who will I be working for? Is the company going to put money into me?"

Taylor says, "In the computer industry, it is really easy to get stuck in a rut in network management." And the thirst for variety has prompted him to move on. He also gets tired of the stress associated with technical support.

When it comes to compensation, Taylor admits that "money is, of course, always a factor," but it has taken a backseat to other considerations. "There was a time four to five years ago when I was purely money-driven,

[but now] it's not so much a money issue as a job issue. I have turned down a \$20 grand a year more" to work somewhere else, Taylor says.

A firm's lack of the most sophisticated equipment has also caused him to move on, he says. "Being the computer geek that I am, I like to play with the latest and greatest technology. That is always enticing," he says.

As one senior software quality assurance engineer, 37, who works for a Fortune 500 company and is more than ready to leave puts it: "The biggest reason people move on is that they get bored. Part of being in the computer culture is wanting to never stuff all the time."

Frank Coleman, a 35-year-old self-described "multimediac man," confirms the aforementioned boredom factor. "A lot of people in our industry have varying degrees of affection deficit disorder," he says.

Coleman, an independent contractor who has worked at a variety of firms, says he's "been around a while because of different clients. Part of that is that I am a restless soul — the Gwynn aspect [of moving from job to job] appeals to me."

"When I was working for other people, the longest I could ever stay at a particular job was a year. After a year, I would start getting squirrely," Coleman says.

Manager's view:

From one manager's point of view, lifestyle needs drive more IS people to new jobs than anything else. Don Serpico, executive vice president of operations at the Chicago Mercantile Exchange, has been in information services for 30 years. He says one of the main reasons his people leave these days "is a quality of life issue."

"A generation ago, there was a certain mind-set and a certain discipline followed" regarding priorities of work and personal life. "Now, there are certain home life standards that people are really committed to," he says, and they will leave if they feel those standards are not being met.

Serpico says at one time there was a "tremendous



© Robert Neubecker

pride" in IS work, but "you are not seeing that as much anymore. Instead, you are seeing bailouts on projects in the middle of projects."

He also attributes job turnover to the relentless recruiting of people with specialized skills. "You are finding a tremendous amount of movement due to these efforts. People are getting snatched away because of their specialized expertise. Financial institutions are losing people to a bigger variety of smaller companies [offering] very flexible packages," Serpico says.

Liz Ryan, vice president of human resources at Skokie, Ill.-based SRS Robotics, says her people are "under assault by headhunters. The phones are burning up with opportunities. It is as hot as I've ever seen it."

Maintaining a vibrant technological environment is crucial to keeping your best IS workers happy, she says. "If you don't put challenging opportunities in front of people, it is like giving an artist nothing but boring drafting assignments," Ryan says.

Lisa Bond, IS director at DMBAE, an advertising agency in New York, downplays the lifestyle excuse and concentrates on more traditional reasons such as "the ability to get a jump in salary by moving." However, she quickly adds that it is not universal because she has seen a few people even take a small pay cut for a new job. Another reason is a desire for training. With so many companies under budgetary constraints, people often must leave to seek "the next technological challenges wherever and whenever they may be. Some companies don't move as fast as others," Bond says.

At least not as fast as their employees do.

Most common reasons for leaving a job*

	IS staff	IS middle manager
Increased challenges/advancement	167	154
Better pay	104	100
Escape stress	93	88
Lack of communication with superiors	83	78
Leisure	76	72

*See response, bottom responses column

Source: Computerworld's Job Satisfaction Survey

Interest level in jobs at other companies*

	IS staff	IS middle manager
Not actively looking, but if the right job came along . . .	104	100
Always looking	87	83
Currently seeking job for advancement	81	77
Not responding	173	201

*See response, bottom responses column

Company's action to minimize turnover*

	IS staff	IS middle manager
Nothing	120	145
Competitive salary/bonus	110	135
Training/education	83	100
Not responding	120	145

One of America's Finest Companies™
is searching for America's
Great MM professionals.

Get an edge in information technology career track with ITI. Located in Central Illinois, we are financially solid and among

Oversight of RUI's MIS Department is a corporate imperative. You will be a key player in implementing a major systems overhaul including migration to an AS/400 environment. RUI is committed to investing in the latest technology and most qualified people. We will harness your leadership skills, give you wide latitude and autonomy, and compensate you handsomely if you meet the challenges of these positions.

PROJECT LEADERS

Project Leader
You will be immersed in critical project management planning and implementation (CRM, Teles, and information engineering). The ideal candidate will possess a Bachelor's Degree in MIS or related field; minimum 3.0/4.0 GPA; at least 4 years Systems Development experience including AS400 & CICS; proven ability to demonstrate proficiency in structured methodology, project management and package implementation; background in excellent interpersonal skills, and the ability to work independently.

BUSINESS ANALYST

BUSINESS ANALYST
You will interact with key user groups and be immersed in critical project management, CAD, tools, and information engineering. The ideal candidate will possess a Bachelor's Degree in MIS or related field; minimum 3.0-4.0 GPA; at least 2 years Systems Development experience including AS400 & CORBA; demonstrated experience in structured methodology; package implementation and systematics conversions; excellent interpersonal skills; and be committed to continued education.

We offer a competitive salary and an outstanding non-contributory
benefits package including major medical, dental, disability,
life, pension, and profit sharing (ESOP) as well as a smoke free
work environment.

LI Insurance Company
Mr. S. Personnel Administrator
8255 N. Lindbergh Drive, Phoenix, AZ 85161-1515

RLI has been selected as one of America's Finest Companies by the Financial Training Group. More than 300 of America's publicly traded companies have this distinction.



Saudi Arabia

SAUDI ARABIA

The First Air Expressive Pett
First Saudi News

- Software Development** - We have been involved in the development of software systems for the following clients:
Telecommunications project in the Kingdom of Saudi Arabia. Packages include: T1/Fax, voicemail, Free House and Transportation. Experienced engineers are available at the following staff:
SAP R/3
■ 10 yrs exp. in Clear Systems' environment. Specialized in:
■ IBM, DEC, TELCOM & POWERWARE TELECOMMUNICATIONS
POWERPLANT ■ RDBMS
2ND FACILITATORS ■ ADT
■ Management, PROTOCOLS ■ Labware
■ Information Systems, System experience
NETWORKING TECHNOLOGY ■ CINET, ETHERNET, TOKEN RING
ORACLE DBA ■ AS/400/AS/400i experience
DB2/DB2/DB2/DB2/DB2 ■ Sys. Mgrs.
■ DB2/DB2/DB2/DB2/DB2

Allen Victoria Freeman
2900 N. LoopWest #200
Houston, TX 77088
Internet Address:
[HTTP://WWW.BESTOFTEXAS.COM](http://WWW.BESTOFTEXAS.COM)



ATTENTION CONTRACTORS:

Add your resume to the Jupiter Database and let all the consulting companies that are looking for top skilled come to you. Assessments/Problems are available nationwide for absolutely of skills. The Jupiter System, an on-line database of 15 professionals that are available for immediate and permanent positions can give you the added advantage in finding that perfect assignment or job. And it costs you nothing! if you want that added advantage, mail or fax your resume to:

The Sumner System

P.O. Box 37975 FAX (800) 305-42
Kansas City, Mo. 64138 VOICE (800) 222-87
Assignment: Contract HQ • Contract 1000 • Contact to Hire • Permanent
Placement • Project • Application Programmers • Database Administrators • Lan
Administrators • Programmers/Analysts • Systems Analysts • Systems
Programmers • Testers • UNIX • Windows • C/C++ • COBOL • Fortran • PL/I • Pascal

Pacific Northwest



We have a proven track record of systems integration and information services consulting. Our 7 years of double digit growth and market leadership is due to our strong ethical standards, integrity and ability to offer the very best.

PDG offers an attractive compensation and benefits package. For immediate consideration, fax, mail or e-mail your resume to: Pacific Data Group, Inc., 10200 SW Greenwings Pkwy, Suite 2300, Dept C Portland, OR 97223. Fax: (503) 283-3888. Tel: 800-253-2488.

TOEIC 314 consumers@pdg.com

- IBM OS/3
 - IBM OS/360
 - IBM OS/360
 - OS/360
 - COBOL, C/F
 - Human
 - C/C++
 - Frameworks
 - Oracle MySQL
 - Oracle Forms
 - Oracle Case
 - Windows NT
 - Visual Basic
 - SQL Server
 - SQL window
 - SAP ERP
 - AD/3D
 - ET ADW

CONSULTANT



**IMMEDIATE
CONTRACTS**
Realty Investments & Co.
Hilmi Simon Assoc.
100 W. 57th St., Suite 1100-NYC 10019
(212) 405-1795
FAX (212) 581-1221

MTW

WILL CONSULTING

IT/REF/TECH
MTW Consulting is hiring for project work! With several multi-year full life cycle projects under way, MTW Consulting has immediate needs within several key positions, including:

- Senior and Mid-level IT/REF Developers
- Experienced Test/QA/DBA/CISS/Programmer Analysts

MTW Consulting offers competitive salaries, relocation assistance,

Business package
2300 Main St., #900 Kansas City, MO 64108
(816) 421-8998 • (800) 643-3878

Information Technology (IT) Opportunities at Gander Mountain

Goosier Minnesota, a premier supplier of hunting, fishing and camping equipment, has an immediate need for talented computer professionals to join us on the growing IT staff at our corporate headquarters in Willmar, MN.

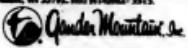
Project Leader

Requires a highly motivated and career-oriented individual with at least five years of R&D/400 experience, demonstrated success in a multiple AS/400 environment, as well as considerable aptitude for managing projects and implementing structured approaches to application development. Knowledge of inventory control and warehouse distribution processes is a plus. REPLY CODE: PL

Programmer/Analysts

Requires self-motivated, logical and methodical individuals with strong written and verbal communication skills and at least two years of successful ITC/400 programming experience on an AS/400. REBOT C008 PA.

We offer qualified candidates an attractive compensation package in a great location just 90 minutes northwest of Chicago and 45 minutes southwest of Milwaukee. Please send your resume and salary history (indicating selected Reply Code) to Gardner Minnesota, Human Resources Dept., P.O. Box 120, Wilmar, MN 56392-0120, (612) 662-2513.



[Equal Opportunity Employer M/F/H/V](#)

"I think you're much more..."

the achievement problems are less dramatic than those associated with reading comprehension, reading fluency, and reading comprehension. Chinese Language Model research has demonstrated that reading comprehension is a complex process involving multiple skills and knowledge areas. The Chinese Language Model research has demonstrated that reading comprehension is a complex process involving multiple skills and knowledge areas. The Chinese Language Model research has demonstrated that reading comprehension is a complex process involving multiple skills and knowledge areas. The Chinese Language Model research has demonstrated that reading comprehension is a complex process involving multiple skills and knowledge areas.

How to find the Midwest's top computer talent

Munich University

1-800-343-6474

Recruit
computer
professionals
in the one
newspaper
that reaches
more
QUALIFIED
professionals
than any other
newspaper:
Computerworld.

For more
information or
to place your
advertisement,
call

Lisa McGrath at
1-800-343-6474;
ext. 201

Weekly.
Regional.
National.
And it works.

**Another Reason Why
Computerworld
Recruitment
Advertising Works...**

Computerworld reaches more skilled computer professionals than any other newspaper or magazine - Sunday, daily, or trade.

Over one half million of them to be exact. And from Windows NT to OS/2 professionals, LOTUS NOTES to DB2 professionals, these job candidates have the skills your company needs.

Some Key Skills of Computerworld's Readers

Hardware	IBM PC Compatible Pentium/Alpha/Power PC	423,964 75,534
Languages/ Utilities	Windows C++	371,174 137,056
Operating Systems	Windows NT OS/2	53,908 172,343
Data Management	DB2 Oracle	165,383 134,106
Communications	X.25 LU6.2	144,948 122,199
Local Area Networks (LANs)	Novell/Netware Ethernet	341,548 248,973
Office Automation/ E-mail	Lotus Notes MS-Mail	44,241 120,374

SOURCE: Skill Survey of Computerworld's Audience, August 1994

Call for a copy of our Skill Survey.

To place your ad regionally or nationally, call John Corrigan,
Vice President/Professional Development Division, at
800/343-6474 x201.

COMPUTERWORLD

Computer Careers

Computer

Join us in Colorado and take your career to a new level.

Perot Systems isn't just another company. In fact, we aren't the any other company. Our culture and structure encourage accountability and allows quick advancement. And our job opportunities come with great pay, top benefits and exceptional education assistance.

We are currently seeking professionals to become involved in team-based Full Systems Life Cycle projects in Colorado. Our candidates should have 3-7 years of career experience in one of the following areas:

- COROLICOROL II, CHCS, IMCS, DRZ, TISOMPF
- C/C++, UNIX, DBMS, Visual Basic

Please fax your resume to 720/588-5201. Mail your resume to: Perot Systems Corporation, Dept. CW704, 6700 Corporate Drive, Suite 100, Colorado Springs, CO 80915. E-mail: recruit@perot.com. Or, what can we do? The World Wide Web: <http://www.perot.com>. An Equal Opportunity Employer. To learn more about our openings at Perot Systems locations listed below, fax your resume to 720/588-5201.



Differently Different. Decidedly Better.

Washington, DC - Dallas / Atlanta / Milwaukee
Cedar Rapids, IA - Denver / Orlando / Detroit
Philadelphia / Minneapolis, MN

NATURALIMBARIAS CONSULTANTS

Let us help you to find
the right people to fit
your needs. We specialize
in the placement of
Financial Analysts, Project
Managers, SAP® Consultants,
and Database Administrators.

Send resume to: CPL Worldwide,
1000 Peachtree Street, N.E., Suite 1000, Atlanta, GA 30309.
Fax: 404-584-4000.



PROGRAMMER ANALYST

Local per diem program-

mers for Court and Financial

systems. Training during contract

and structured analysis exper-

ience desired. Response:

Via FAX: APR, INC., 401-242-4000
or 401-242-4001. Send resume and salary requirements to:
Mr. County Clerk of Court,
100 Deaderick Street, P.O. Box 5000,
Majors, KY 42250. Fax 606-242-2240.

SAP

We specialize in the placement
of SAP professionals and have
over 300 openings worldwide
for long term contracts and
permanent positions. We have
line of sight, so we can pay
you top rates.

People Unlimited

1805 Series Rd. #4102
Charlotte, NC 28217
Phone: 704-541-1735
Fax: 704-541-1973

The Company With A Heart

TANDEM CONTRACTORS

New business has created some
immediate opportunities for
TANDEM contractors with the
following skills:

Skills: C/C++, COBOL, DB2, DB2
CLP, DB2 SQL, DB2 UDB, DB2
VSE, DB2 LUW, DB2 VPI, DB2
WEBSQL, DB2 UDB, DB2
LUW, DB2 VPI, DB2 WEBSQL

Client: IBM, Dow, or other

**DATA &
SCIENCE, INC.**

2000 University Park
Parsippany, NJ 07054
1-800-448-3274
FAX: 201-457-7794
EMAIL: dsi@prodigy.net

SOFTWARE ENGINEER

Do you have 4+ yrs. exp. in a sys.
softw. engg. envirn. with strong
object-oriented design and implem.

ORACLE, SQL Server & C/C++
experience? Then we want to hear
from you. Call or fax resume to:
1-800-448-3274 or 201-457-7794.

Or visit our website at:
<http://www.dsiconline.com>

Equal opportunity employer
M/F/H/V/D/V

Software Engineer

Software Engineer</

P O W E R

Your career is knowledge.

Your knowledge is power.
Your power is your career.

<http://careers.computerworld.com>

1996

CORPORATE TECHNICAL RECRUITING CONFERENCE



COMPUTERWORLD

June 2- 5, 1996
suburban Denver, CO
1-800-488-9204
to register or for more info



Computerworld's Helpful Hints on Buying IT Products and Services

1 Read editorial providing information on products and services that will help you create a buying strategy and make your job easier.

2 Keep up-to-date on the latest products offered by leading vendors.

3 Seek out grouped advertisements featuring IT products and services that your business needs.

- client/server
- networking and communications
- PC hardware and software
- midrange and mainframe
- consulting
- peripherals
- outsourcing
- leasing
- and more!

4 **MOST IMPORTANT:**
Read the Computerworld Marketplace section every week and accomplish all of the above!

COMPUTERWORLD

Marketplace

Marketplace

OUTSOURCING OPTIONS FOR HELP DESKS



By Alisa Radding

COMPANIES ARE TURNING over all or parts of their help desk operations to a growing cadre of outsourcing vendors. Some consultants discourage this practice, and the economic advantage isn't compelling. But the trend is gaining momentum.

In a recent Help Desk Institute survey, 58% of 1,007 respondents say they outsourced some or all of their help desk operations in 1994, up from 12% in 1993. But the motivation to outsource varies.

Some experts say interest is due in large part to companies' focusing on what they do best and outsourcing functions they're not equipped to handle or can't do cost-effectively.

But money isn't always the main issue. "Cost is [not] driving this," says Char LaBounty, author of the Help Desk Institute study. (In fact, less than 10% of survey respondents calculated the cost per call of their help desks, so those respondents don't even have a basis for cost comparison.) An increase in workload is a more compelling reason to outsource, LaBounty suggests.

For example, Luther Social Services of Illinois in De Pauline outsourced its remote LAN support and help desk when it began installing LANs at more than 120 sites.

"We faced the problem of ramping up a major new system without adding staff, and we didn't have the staff to do both the installation and the support," says Brett Smith, director of information systems. Since many of the remote sites required nonstandard installations, IS

handled installation and outsourced support.

Unfortunately, experts predict the support problem will only get worse. "Windows 95 will require knowledge that few IT organizations have," says Peter Rasmussen, president and chief executive officer of PhareTechnology in Bellevue, Wash. With it, help desks will face a much more complex environment that includes multimedia, remote access, Internet connectivity and more.

Currently, only 5% of 576 companies outsourcing are turning over everything to an outside vendor, according to the survey. But with help desk outsourcing appearing on every vendor's radar screen as a hot trend, a wide range of options exist.

When choosing help desk support vendors, organizations place primary importance on telephone support capabilities, staff expertise and documentation, according to Dataquest Worldwide Services Group. When purchasing support from software vendors, respondents ranked service reputation, product reputation, product features, documentation and clear value of service as the most important issues.

Yet not everyone is bullish on help desk outsourcing. "Outsourcing is expensive," says Ivy Mendoza, president of High Tech High Touch Solutions, a help desk consulting firm in Seattle.

Pricing varies depending on coverage, response speed and the number of users supported. Vendors offer an array of pricing options, from per incident pricing to unlimited service. Luther Social Services, for example, pays a base price for a fixed number of workstations plus a fee for each additional workstation. "You also pay about 40% more for extended support hours," Smith adds.

Because help desk outsourcing is just emerging, organizations must be careful. "Users need to think about what their needs will be tomorrow as well as today because if you dismantle your help desk, it is hard to go back," warns Bob Johnson, a director of research at Dataquest. "We've also seen a lot of vendors go out of business or merge." *Caveat emptor!*

Radding is a freelance writer in Newton, Mass.

ADVERTISERS LISTINGS

PLACE

INDEX

Buy It! Sell It! Lease	pg 103
Computer Components Inc. (800) 334-7073	pg 103
Computer Presentations	pg 103
Doubleclick (800) 363-5757	pg 103
Enterprise Software	pg 102
Alaris Systems Group (800) 912-5330/411	pg 102
Symantec SystemWerks (811) 49-1042-486660	pg 102
Enterprise E-mail	pg 101
Enterprise Solutions (800) 449-1381	pg 101
Large Systems Computer & Peripherals	pg 102
Specialty Equipment (800) 745-1223	pg 102
Outsourcing	pg 102
Interactive Business Systems (819) 385-6497	pg 101

OUTSOURCING/REMOTE COMPUTING

Microcom (800) 274-3556	pg 103
MicroSoft (800) 464-5770	pg 103
Frontline Systems (708) 574-3636	pg 103
Personal/Group Information	pg 103
Strategic (800) 813-0724	pg 101
Network Management	pg 101
Cyber (215) 430-4000	pg 101
Technology for Corporate End-Users	pg 101
Keystone Learning Systems (800) 746-4838	pg 103

CLASSIFIED SOLUTIONS DIRECTORY

Bids/Proposals	pg 103
Conversions	pg 103
Electronic Data Interchange	pg 103
Electronic Documentation	pg 103
PC Solutions	pg 103

TRADESHOWS & EXHIBITIONS

ObjectWorld*	San Francisco
August 15-17	
Networks Expo*	Dallas
September 12-14	
InterCom & Network*	Atlanta
September 25-29	
Cyber Booth #5166	

*Indicates new distribution

COUNTING COSTS

50% of help desk outsourcing deals are customized. Average pricing for annual corporate contracts at the 25 leading support outsourcing vendors include the following:

STANDARD: \$145 average per user;
\$267 per user for extended hours
PER HOUR: \$147
PER MINUTE: \$2 to \$3
PER CALL/INCIDENT: \$5

*These are average corporate prices. Volume discounts available.

Source: Datapost Worldwide Survey Group, Princeton, N.J.

AT A GLANCE

HOW MANY OUTSOURCED?

50% of 1,007 respondents surveyed by the Help Desk Institute outsource some or all of their help desk operations.

WHAT TASKS GO?

50% of 576 respondents outsource hardware support and repair; 30% outsource software-wrapped PC software support; 15% outsource network and LAN support.

WHO GETS HELP?

Datapost identifies four categories of support outsourcing vendors:

- 1) small low-budget telephone-based operations
- 2) systems-support outsourcing providers
- 3) large diversified service companies
- 4) major hardware vendors

MINI-IMPORTANT PLATE FEES OF HELP DESK OUTSOURCING VENDORS

Telephone support capabilities, staff expertise and documentation

Source: Help Desk Institute, Columbia Springs, Datapost Worldwide Survey Group, Princeton, N.J.

PLACE

Premier Solutions

Is Your E-Mail Still Costing You?

Overhead? Inability to add users? Security? Administrative overhead with LAN based e-mail systems? Find costs running to new heights, with no ability to grow.

Enterprise is EX/M Mail from Enterprise Solutions Limited. It allows you to "grow" using your existing infrastructure while evolving to an enterprise-wide solution that will reduce your costs and let you gain control of your information. EX/M Mail has been designed with your enterprise in mind. It's scalable, reliable, secure, easy-to-use, available on a variety of platforms, and offers a modular design with extensive add-on products... all within a standards-based framework.

Call today for a pamphlet describing how organizations of all sizes use EX/M Mail to run their business, and reduce their costs.

EX/M Mail - The Experienced Standard in Enterprise Wide Managing.

ENTERPRISE SOLUTIONS LIMITED
2800 Towngate Road, Suite 210
Westlake Village, CA 91361
805-449-4181 • 805-449-4186 Fax

© 1993 Enterprise Solutions Limited



New Directions for Stratus Users

Register now for the 10th annual Strategy meeting

Users Conference & Trade Show
September 17-20, 1995

Education Seminars
September 16-17, 1995

- Trade show floor
- Technical sessions
- Vendor sessions
- Stratus education

Keynote Speaker

Bill Foster
CEO, Stratus Computer, Inc.

Enter to win a new
Stratus Computer!

Call 1-800-833-8724
More info at www.stratus.com

Are Your Computers Driving You Nuts?

Yes! Then you should call
IBS SUPPORT SERVICES
for quick pain relief!

SERVICES

- Telephone Support
- On/Off-Site Help Desk
- Call Management
- Performance Measurement
- Needs Assessment
- Network Administration
- Staffing/Management
- Agent Training
- Data Analysis

BENEFITS

- End User Productivity
- Reduced Support Costs
- IS Staff IS projects for increased ROI
- Lower Training Costs
- Optimizes Investment in Computing Tools
- Independent, Unbiased & Objective Consulting
- Experienced Firm with 700+ Employees

- 1.75" work day into your computer rack using a minimum of space
- Push-button and keyboard controlled scanning standard
- Control all computers locally, remotely, or both
- Supports all 100% IBM compatible PCs and PS/2 or serial mouse; optional Macintosh and Sun support available
- Rear peripheral access available



810/305-6497



IBS Support Services

DALLAS • DFW

IBMSYS
COMMANDER™

4912 Research Drive Huntsville AL 35892 USA
(205) 430-4000 (205) 430-4036 fax

CYBEX™

Cyber Corporation

PLACE

Software • Hardware • Buy / Sell / Lease

When you buy from Boxlight, you'll get the exact system for your needs. We don't limit you to just a few products. You can choose from over 50 models in stock. Our

\$3999

Boxlight ColorStation 2000

trained people will ask you questions and guide you to the exact solution for your situation, sometimes at a lower cost than you might have thought possible. And, we guarantee to ship your order in less than

\$1999

Boxlight ColorStation 2700

As a result of our mounting concept, from readings, continuous telephone contacts, as well as technical presentations to interested groups and our self-initiated based seminars, we have at our disposal accurate information and permanent contacts within Germany, Austria and Switzerland for mainframe users.

Applies to us who are looking for a qualified business partner for the sales of our own-developed CCW-product:

SET-LIBER

(Change- and Configuration-Management System with an integrated online-repository for SQL, RDB, JCL and other documents) which operates under IBM and/or VM/VSE operating systems.

Wittenberghofstrasse 8
D - 41544 Krefeld
Germany
Tel.: 011-49-2182-88960
Fax: 011-49-2182-88275

SET-LIBER
for transparency



• ES/9000

• SERIES/1

• AS/400

• RS/6000

• SYSTEM/88

...and more!

New & Used

- Computers
- Peripherals
- Upgrades

Buy • Sell • Rent • Lease

SPECTRA
(800) 745-2000

Avalon Corporate Center
510 E. La Palma Ave., Bldg. 100
Anaheim, CA 92807

amcdani

Cisco

Concurrent

Data General

DEC

Hitachi

IBM

Interdata

NCR

TANDEM

UNISYS

XEROX



24 hours wherever you need it even if that means multiple locations worldwide. ■ When your new equipment arrives, it's ready to go. Set up is about as simple as using a toaster. If you ever have questions or need help, our Technical Support Group is standing by with free after-the-sale phone assistance. Every work day. Forever. No charge.

\$2999

Boxlight ProColor 1301

WHEN WORDS ARE NOT ENOUGH...

CALL BOXLIGHT!

1-800-762-5757

CALL FOR
OUR LATEST
SPECIALS.

Compucenter main office: 1-800-762-5757
International: 1-800-377-7777 • Service: 1-800-777-7755 • Fax: 1-800-777-7755

Call today and add a little

BOXLIGHT
DIRECT

1-800-762-5757

Purchasing promotion equipment doesn't get any more convenient. Just pick up the phone and dial.

There's absolutely no risk in buying from us, because if you're not happy with your purchase, call us within 30 days and return it for your money back. No haggle. No risk!

Business Connections Wanted!

We are a successful German softwarehouse and we are looking for an American software company that we can work for in german speaking Europe. The company should be able to offer attractive standard software products for the MVS and/or VM/VSE mainframe market.

As a result of our mounting concept, from readings, continuous telephone contacts, as well as technical presentations to interested groups and our self-initiated based seminars, we have at our disposal accurate information and permanent contacts within Germany, Austria and Switzerland for mainframe users.

Applies to us who are looking for a qualified business partner for the sales of our own-developed CCW-product:

SET-LIBER

(Change- and Configuration-Management System with an integrated online-repository for SQL, RDB, JCL and other documents) which operates under IBM and/or VM/VSE operating systems.

Wittenberghofstrasse 8
D - 41544 Krefeld
Germany
Tel.: 011-49-2182-88960
Fax: 011-49-2182-88275

SET-LIBER
for transparency

How many products does it take to manage customer service in your data center?

More than one?

What would your customers say if you installed one software product that could:

Present your service solution across any platforms you choose;

Automate your system facilities to communicate with your enterprise management solution;

Integrate your service desk, problem, change, and asset management disciplines; and—

Distribute your data and applications across popular non-relational, relational databases?

How about, "Thank you."

ASG announces
ASG-IMPACT™ and
ASG-IMPACT/LAN™

today's only totally integrated customer service, enterprise management solution.

Call your ASG sales and service representative today for details.

1-800-932-5536, Ext. 411.



ALLEN SYSTEMS GROUP

Customer Service for the Enterprise

Offices: Naples, FL, Atlanta, Boston, Sydney, Paris, Tokyo, Amsterdam, Singapore, Seoul, U.K.
Copyright 1991, Allen Systems Group, Inc. All products named herein are trademarks of their respective holders.

Companies in this issue

Page number refers to page on which story begins

3Com Corp.	654	Dean Foods Co.	59	K		Reuters NewMedia, Inc.	55
4th Dimension Software, Inc.	60	Dearborn Financial Publishing, Inc.	48	Kingsgate Technology Corp.	60	Silverstone Technologies, Inc.	63
A		Delta Air Lines	53	Kirin and Marstel	60	Sorenson, Inc.	5
Aberdeen Group, Inc.	8, 83, 54	Diamond Head Software, Inc.	64	L		Roth & Haas	76
Adaptive Solutions, Inc.	48	Digital Equipment Corp.	1, 8, 12, 14	Laguna Honda Hospital	59	Ross-Car, Inc.	29
ADC Kestrel	10	Digital Instrumentation	39, 48, 49, 54, 60	Landmark Systems Corp.	59	S	
Adobe Systems, Inc.	8, 42, 64	Technology, Inc.	42	Large Storage Configurations, Inc.	60	Saber Software Corp.	50
Advanced Micro Devices, Inc.	58	Digitalk, Inc.	10, 64	Lawson Software	59	Seattle City University	6
Advanced System Solutions, Inc.	42	Diversify Corp.	76	Legent Corp.	32	SAP AG	56
Altiris Computer Solutions, Inc.	42	DuPont Co.	58	Lotus Development Corp.	74, 85, 87	Science Applications International Corp.	83
Alta America, Inc.	42	DuPont Co.	47	Macromedia, Inc.	53	Silicon Graphics, Inc.	64
Alexander Consulting Group	76	Duff & Phelps Investment Research, Inc.	14	Macmillan Computer Communications, Inc.	32	Simco Technologies, Inc.	64
All, Inc.	24	E		Macmillan Computer Communications, Inc.	54	Smart Computer Systems, Inc.	64
Alpharetta, Inc.	89	F		M		Shell Services Co.	8
Altek, Inc.	60	G		Mars, Inc.	26	SHL Systemhouse, Inc.	60
American Express		H		Maytag Corp., Inc.	69	Silicon Graphics, Inc.	62, 67
Travel Related Services	16	I		McGraw-Hill's User's Guide	48	Silicon Software Research	1
American Home Products	76	J		Manpower, Inc.	59	Sonic Microphones	39
American Management Systems	29, 58	K		McAfee Associates, Inc.	29	Southwest Airlines	33
AMC Group	47	L		McGraw-Hill Computer Communications, Inc.	53	Sprint Corp.	1, 16
Anderson Consulting	63	M		McGraw-Hill Computer Communications, Inc.	54	St. Vincent's Hospital	59
Antennex Research	4	N		Mercury Communications Corp.	10	Starboard Microsystems, Inc.	54
Arendis Software, Inc.	8	O		Mercury Research	12	Starfire Software, Inc.	32
ASTRA, Inc.	5	P		Merrill Lynch & Co.	109	STETECH	5
AT&T Corp.	1, 10, 12	Q		Metsa Group, Inc.	53	Strategic Networks Consulting, Inc.	54
AT&T Global Information Solutions	1	R		MicroAge, Inc.	1, 4, 8, 12, 14, 28	Suburbia of America, Inc.	39
Atelier Research	16	S		Microsoft Corp.	42, 49, 60, 64, 109	Summit Strategies, Inc.	27
B		T		Midwest, Inc.	27	Sunrise, Inc.	14, 42, 49, 60, 64
Babson College	35	U		Midwest Systems, Inc.	64	Sybase, Inc.	49
Bauer One Corp.	39	V		Modem Technologies	95	Symantec Corp.	62, 109
Bausch & Lomb Corp.	4	W		NASA		Systech Corp.	8
Bay Systems, Inc.	64	X		National Engineers, Inc.	1, 13	Tandy Computers, Inc.	29
Bayview, Inc.	54	Y		Naval Research Laboratory	89	Tektronix Software Systems, Inc.	63
Bayer CropScience, Inc.	78	Z		NEC America, Inc.	93	Tele-Delete, Inc.	1, 10
Blaize Technologies, Inc.	78	G		NEC Research Institute	93	The Computer Maintenance Bank NA	59
BMC Software, Inc.	85	H		NetScape Communications Corp.	10	The Learning Co.	68, 107
Bonita & Babbage, Inc.	6	I		New York Life Insurance Co.	49	Thomson Technology Services	10
Borland International, Inc.	85, 94	J		Newsbridge Networks, Inc.	12	Toshiba America	
Bornright Associates, Inc.	78	K		Noxcom, Inc.	6	TrueCall Systems, Inc.	12
Brock Control Systems, Inc.	107	L		North Coast Software, Inc.	49	TriNet Services, Inc.	55
Broderleaf Software, Inc.	107	M		Novell Corp.	4, 12, 47, 49, 64	TriTel Corp.	47
Bruce Silver Associates	60	N		Object Technologies, Inc.	69	U	
Bunge Corp.	78	O		ObjectSoft Software, Inc.	29	Uanobank	
C		P		Open Market, Inc.	29, 35	Uanobank	4
Caboture Systems, Inc.	6, 54	Q		Open Software Foundation	47	United Computer Components, Inc.	1, 60
Campbell Soup Co.	69	R		Opentech Management Corp.	36	University of California	47
Chevron Information Technology Co.	1, 8	S		Oracle Corp.	48, 50, 60	University of Oregon	1
China Mercantile Exchange	58	T		Pacific Bell Directory	1	University of Southern California	83
Child Abuse Department	53	U		Pacific Data Products, Inc.	69	U.S. Robotics	89
Children's Hospital	4	V		Pacific Northwest Telephone Co.	42	Ultimate Management Information Services	53
Chipron Corp.	6	W		Panasonic	109	V	
Chiron Systems, Inc.	1, 13, 54	X		Panasonic	109	Wal-Mart Direct Marketing Services, Inc.	6
CII Restaurants, Inc.	60	Y		Panasonic	109	Varian, Inc.	65, 64
Cirrus Logic, Inc.	98	Z		Panasonic	109	W	
Comcast, Inc.	39	G		Panasonic	109	Walgreens Co.	108
CommerceNet, Inc.	29	H		Panasonic	109	Walker Baker & Quinn, Inc.	6
Comshare Group, Inc.	64	I		Panasonic	109	Warren Lambert Co.	64
Communication Network		J		Park-Davis	16	Warner Lambert Co.	12
Arkeion, Inc.	4	K		PeopleSoft, Inc.	58	Warman Peripherals International	42
Computer Com, Corp.	1, 12, 14, 29	L		PerleSoft, Inc.	47, 48, 50	Webtac Corp.	28
Computer Systems, Inc.	8	M		PowerSoft Corp.	32, 69	WebExpo Books and Records	63
Computer Associates International, Inc.		N		Progress International, Inc.	64	WFN, Inc.	1, 10
Computer Control Systems, Inc.	8, 22	O		Progress Software Corp.	64	Workgroup Strategic Services, Inc.	109
Computer Intelligence, Inc.	64	P		Prudential	60	X	
Computer Networks, Inc.	47	Q		Pure Software, Inc.	60	X/Open Co.	14, 47
Continental Airlines	76	R		Pure Software, Inc.	64	Xuron, Inc.	5, 53
Cray Computer Corp.	8	S		Red Brick Systems	69	Y	
Cray Research, Inc.	5	T		Retia, Inc.	34	Yahoo! Corp.	55
Critical Computer Services, Inc.	47	U					
Cubix Corp.	47	V					
D		W					
D.H. Stevens Associates, Inc.	14	X					
DataSystems Support	49	Y					
Dataquest, Inc.	1, 14, 20, 42, 54	Z					
Jefferies and Co.	107						

SPECTRUM

FOR OPEN SYSTEMS

GET BEHIND THE WHEEL OF A WINNER... NOW!

TAKE SPECTRUM FOR A SPIN!

The SPECTRUM field
team presents a strong
challenge to the inef-
ficient, monolithic
mainframe. Network
environments make
this an opportunity
to evaluate a truly
distributed manage-
ment platform in a
realistic, unbiased test
environment.

May 16-18, 1990
Orlando, Florida

Only SPECTRUM...

- Provides the highest management system
- Offers distributed management for Bigiron
- Operates on the industry's top IBM, DEC and Sun

Check your SPECTRUM
network without a
commitment to a specific
product. This offer is only valid through

May 18, 1990



IBM and DEC Manufacturing Solution™

Call 1-800-IBM-4YOU



Stability and compatibility top Win 95 user issues

Training and networking secondary concerns

By Cheryl Gerber

Corporate users bracing for the move to Microsoft Corp.'s Windows 95 are concerned chiefly with stability and compatibility, with a lesser focus on cost and networking.

"Our greatest concern is stability. We want to be sure the bugs are worked out and [that] there's no danger of system crashes," said David Bernauer, chief information officer of Walgreen Co. in Deerfield, Ill.

Compatibility between the 16- and 32-bit environments is also a salient concern, Bernauer and others said. The long file names in Windows 95 don't integrate with the short file names of Windows 3.1 files.

"If I save a long file name on a networked drive that contains the 16-bit version of the application, then that user will see a shortened, cryptic version of the long file name. In the mixed 16- and 32-bit application environment, it's hard for people to decipher file names," said En-

rique Salem, general manager of Symantec Corp.'s Norton Utilities division who is beta-testing Windows 95.

Compatibility is also a big concern at AGC Services Corp. in Norcross, Ga., the data center for a large agricultural financial services company. "Setting incompatible documents up and getting between offices will be a problem. There is no backward converter yet for [Microsoft's] new 32-bit PowerPoint, for example," said Perry Mithell, network planner at AGC.

Mithell has been preoccupied with printer driver migration. "We know we'll have printer driver incompatibility between Windows 95 and the 32-bit version of Word. We're running the 32-bit Word on NT, now, and we've had problems," he said.

Of lesser importance

The high costs of maintaining help desk and concerns about networking compatibility have been relegated to secondary issues because the Windows 95 ar-

chitecture addresses some of those concerns. Analysts say cost concerns have been partially assuaged by the fact that Windows 95's registry and systems management features help with cost justification. And the built-in TCP/IP protocol stack eases concerns about a lack of standard networking.

"It can reduce 40% of our technical calls through the functionality delivered in the operating system. It's dramatically cost justifiable," said John Densie, a consultant at Workgroup Strategic Services, Inc. in Portsmith, N.H.

Training is a concern, however. At ISDN service giant Merrill Lynch & Co. in New York, "the time and cost of training is a big issue right now. The user interface of Windows 95 is different from Windows 3.1," said a brokerage executive who requested anonymity.

Developers also foresee a steep learn-

ing curve with regard to the different interface. "Windows 95 uses four levels of cascading menus for launching programs vs. just using Windows that contain program icons in Windows 3.1," Salem said.

Stability tops

It is stability, however, that has been the top concern among corporate Microsoft users for the past year, according to surveys on Windows 95 migration issues completed last year and this year by International Data Corp. (IDC) in Framingham, Mass.

"One year ago, the reservations users had about [Windows 95] were reliability and bugs. In the intervening year, that remains their chief concern, and it contributes to their reluctance to upgrade to Windows 95 immediately after it ships," said Mary Conti Loffredo, an analyst at IDC who recently completed the survey.

What price Win 95?

CONTINUED FROM PAGE 1

8M bytes of RAM and a 24M- to 48M-byte hard disk to load the operating system. Giving the 486 the nod, survey respondents overwhelmingly said they will recommend a 300M- to 790M-byte hard disk and 8M to 16M bytes of RAM.

Companies also vary in how they figure costs. In addition to hardware and software expenses, some include installation, training and support as well as completely unrelated costs such as network charges.

"We have a generic number of about \$600" based on several cases, said Jim Lissak, senior software engineer at Chevron Information Technology Co. in San Ramon, Calif. That figure includes "hardware, software, installation time, training and support [costs]," he said.

"[Our] preliminary spreadsheet [estimates] about \$2,000 per machine," said John Thompson, systems manager in the resource group at the Tennessee Valley Authority's Chattanooga facility. The TVA's estimates include about \$500 per user for training. And while the average PC at the TVA is a 486-based machine with 16M bytes of RAM and a 500M-byte hard drive, the estimate also includes the cost of installing a Microsoft Windows NT-based network.

"We've been running with an estimate of \$500" per machine to upgrade the

hardware and software used on early adopter companies likely to have mostly PCs that are less than 2 years old, said Rob Endler, a senior industry analyst at Dataquest, Inc. in San Jose, Calif.

However, it may be difficult to account for the cost of upgrading to Windows 95 because its release is likely to be the catalyst for an overall performance upgrade, said Chris Le Toog, principal analyst at SoftTracks Software Research in Los Altos, Calif.

Training is another area where costs are hard to quantify, although 60% of respondents in the Computerworld survey said they plan to provide users with less than three hours of Windows 95 training. Still, ISDN expectations vary dramatically.

"In an hour, you can show people all they need to know to go from Windows 3.1 and Office 4.0 to Windows 95 and Office 95," said Briceiro Stephens, a coordinator for space sciences at NASA in Huntsville, Ala.

In contrast, Don Barker, associate professor of information sciences at Gonzaga University in Spokane, Wash., said he doesn't plan to provide any training other than interactive CD-ROM-based training tools and tutorials.

On the opposite end of the scale, Lissak said that while Chevron and users will initially receive an hour of training, the company will provide follow-on training for users depending on specific needs.

Alternatives surface for Windows 95 support. See page 39.

AT&T opens up

CONTINUED FROM PAGE 1

ers more capacity for remote LAN access than dial-up lines.

But user-to-user signaling will enable PRI, AT&T's ISDN service, to be used by midsize and large sites to more efficiently support remote access. That will win accolades in the data market for the younger, less-established PRI.

"That is a great capability that we could definitely use," said Dave Meyer, a senior network engineer at the University of Oregon in Eugene. "We'd love to move authentication for remote access over to the D [signaling] because our users are predominately B class." We need as many of them as we can get."

A PRI would let 23 or larger sites do in a LAN at a midsize or large site at the same time; a BRI would let two workers work on the same thing.

While BRI lines have two 64Kbit/sec. B channels and one 64Kbit/sec. D-signaling channel, PRI lines—which analysts say are selling like hotcakes—have 23 64Kbit/sec. B channels and one 64Kbit/sec. D-signaling channel.

More savings

The extra 64K bit/sec. will also help carriers better support high-bandwidth applications. Shifting functions from a channel that is billed per minute, such as a phone call, to the less expensive kilo-packet-prived signaling channel will also save users money.

To employ user-to-user signaling, the masses of users with T1 lines, which cost about \$410 per month, will need to speed roughly \$400 more a month for a PRI line. The extra \$400 buys the signaling channel, which users can't get with T1 lines.

"The \$400 charge for a PRI is a minimal one when you start to consider the added functionality that users will be able to get with the signaling channel," said Mark Langner, a senior analyst at Teleoice, Inc. in Vernon, N.J. Meyer agreed.

AT&T is expected to use a flat-rate charge to a certain level, beyond which users would pay a usage-based charge. It didn't have specific pricing last week.

Langner speculated AT&T will employ user-to-user signaling as part of a multi-month controlled introduction with many users, followed by nationwide availability.

Keeping ahead of the pack

Offering the new capabilities for ISDN PRI would help AT&T—which analysts estimate has 50% of the PRI market—keep that huge market lead over rivals MCI Communications Corp., Sprint Corp. and WU Tel.

Langner said the explosion of user interest in remote LAN access and LAN-to-LAN access has fueled the development of the new network-based capabilities. "[User-to-user signaling] is just the beginning of AT&T's plans to expand the role of PRI far beyond the voice features it supports today," Langner said. "Network managers need to start looking at moving from T1 to PRI to gain capacity and to use future features."

Routing vendors, such as Cisco Systems, Inc., have laid the foundation for user-to-user signaling by providing PRI interfaces for their routers. Vendors will need to add minimal code to router software to support the new offerings.

Analysts say other national carriers have the basic ability to support user-to-user signaling from their nationwide networks but lag AT&T in bringing their implementations of the technology to market.

The Back Page

NT suddenly looks better in the daylight of Win 95

You don't have to be a genius to sense the wave of second thoughts sweeping the user community as Microsoft prepares to launch Windows 95.

Should we delay our conversion? Will our applications be available when we need them? If it's coming out on time, how stable will it be? These are some of the questions PC managers and information systems directors are asking themselves.

Microsoft Chairman Bill Gates recently told Wall Street analysts that he sees only more versions of Windows before it merges with Windows NT. His comment raises the question, "If we are going to end up with Windows NT anyway, why don't we just move there now?"

The prospect of migrating to NT is a difficult one. It is an inherently more complex, server-oriented operating system with many properties that end users don't need. It was designed to merge the best features of Unix and Digital's VMS around a hardware-independent microkernel. Until now, I didn't view NT as an end-user operating system, but desktop hardware and networking needs are catching up to it.

NT's software and hardware requirements are only a short jump ahead of what you are buying for Win 95. If you have been buying PCs with 8MB to 12MB of memory to prepare for Win 95, then you need only move to 16MB bytes to prepare for Windows NT.

The distinction grows between the two operating systems has one manager saying "no" to Win 95 and "next year" to NT. Vince Christian, MIS director at Randy Corp., a specialized training firm in Tracy, Calif., says he is buying only Pentium-based PCs equipped with 16MB of memory for his 250 users. But he has no plans to convert them to Win 95. In a year, he expects, he'll move straight to NT.

In a tree-drive, Christian found that his 32-bit version of Microsoft's own Schedule Plus is not backward-compatible with his current Schedule Plus on Windows for Workgroups. If he converts some users to Win 95, they will be able to read and update other Win 95 user calendars but not those back in the world of Windows 3.1. Christian says he worries that the same con-

flict between 16- and 32-bit applications may crop up for other Win 95 packages, so he plans to convert everyone to NT at the same time.

And while the Win 95 operating system is inexpensive, buying new applications for everyone begins to add up. "Windows 95 is the 'new' Coke," Christian says. Why not just move to NT instead? he asks.

Apparently he isn't alone.

Computerworld surveyed 100 IS managers and found that 79 plan to move to Win 95, although only 29% said they would migrate in its first six months. And 35% said it was very likely or somewhat likely that they would skip Win 95 and move to NT. These responses were collected before Gates confirmed to Wall Street that Windows would soon move into NT. As they ponder that statement, some managers are going to reconsider their need for Win 95.

IS managers also might want to consider the following:

Security. NT offers C3-level security, which allows the owner of a database, file or other resource to decide which users can access it and what those users can do with it. NT also keeps an auditor's account of security-related events, including identification of who attempts to access or delete system resources. Wall Street firms have been among the early converts to NT from Unix, partly because of its security features. Win 95 does not offer C2 options.

Multithreading. Ambitious users want to do more than one task at a time, which they can do under Windows 3.1 or Win 95. But Windows NT is a multithreaded, multitasking system that can take advantage of more than one CPU. This feature is useful to investment advisers or customer information workers conducting complex queries against large databases.

The next six months are likely to reveal a pronounced shift toward NT. If you don't want to move all of your end users, it might make sense to consider those at company headquarters, in a trading room or in a customer information system. They will benefit most from NT's multithreading and security.

Babcock is Computerworld's technical editor. His Internet address is cbabcock@ew.com

How to contact Computerworld editors:

Main office, Burlington, Mass.	PHONE: (617) 871-6700	FAX: (617) 873-5731
Mid-Atlantic Bureau, Rockville, Md.	(301) 961-8000	(301) 773-5801
Washington Bureau, Washington	(202) 223-6170	(202) 223-6175
Southwestern Bureau, Fort Worth, Texas	(817) 342-6585	(817) 342-6475
West Coast Bureau, Burlingame, Calif.	(415) 347-9555	(415) 347-6475
International Bureau, Bellevue, Wash.	(206) 443-7777	(206) 442-0225
<hr/>		
CP Business mail: Writers and editors have individual Internet accounts. Address messages to first initial and last name or to the reporter's name, which is opposite the editorial page. For example, letter to Dennis Hayslett Johnson can be addressed to dhj@ew.com.		
CP Business news column is 105374.aps. Direct subscription inquiries to Computernews, 7333 N.W. 2nd Ave., Suite 1000, Ft. Lauderdale, Fla. 33309.		
CP Letters to the editor and other editorial-related messages can be sent via Internet to 105374@compuserve.com .		
CP Classifieds Journal: Contact Editor Alan Hoyer at (301) 860-8285 or via Internet to ahoyer@compuserve.com .		
CP Broadcasts: Contact Sharon Bryant at (301) 860-8285.		

Inside Lines

Never let facts get in the way of a good plot.

The new *Insider*—written like *The Art*, closing clauses included as "Author's Angels"—is full of megalomaniacs and overachievers, plotting in the depths of a basement, according to Jim Blagdon, president of the Information Systems Audit and Control Association. "The *Insider* has one audience: programmers. [The *Insider* developer] could have successfully built into any computer system in pure fiction," Blagdon said. Also, the "audience for this movie were far more adept at finding programming errors than the government is," he pointed out, quid.

Making it personal

Digital is planning to unveil a "personal workstation" next month, that will run on either Intel or Alpha microprocessors—and even switch from one to the other. Tom Flores, marketing director of Digital's Windows NT unit, said, "You can buy it as an Information and then upgrade it to an Alpha later" by installing a new card.

The Sun sets on Islandia

Computer Associates continues to tighten the integration between its CA-Unix server system management package and other leading network management products. This week, CA and Microstep will announce plans to join CA-Unicenter and Microstep Manager into a single, integrated product. Sources said the plane, which extend well beyond the limited connectivity the systems share, are nice to the integration project CA and Hewlett-Packard unveiled several months ago.

Everybody share, now!

Collabora Software in Menlo Park, Calif., is working on Release 2.0 of Collabix Share, its information sharing product that competes on the low end with Notes. The company will focus primarily on two areas: the Internet and Microsoft's Messaging Application Programming Interface (MAPI) 1.0. Share 2.0 will support multipurpose Internet Mail Extensions on the Internet. It will also provide stronger support for MAPI 1.0, which will ship with Windows 95, and de-emphasize Vendor Independent Messaging and Common Messaging Call APIs.

"Basic" ally panicked?

Are these kinds of sweet framing on the brinks of Microsoft's normally customer-cool Visual Basic product issues? Beta users have grumbled that the much-awaited major new release of Visual Basic might not be much hot stuff after all, especially when compared with rival Borland's scrapping Delphi tool. And now the folks behind the MS-VB Visual Basic 4.0 — which was originally scheduled for a mid-September announcement — have decided to march right into the Nov. 1 date. They will brief the press this week at, of all places, the Borland developers conference in flea Diego.

Novell hints with Windows NT

While Novell isn't saying anything officially, the Provo, Utah, company appears to be moving closer to greatness now: witness that it port its NetWare Directory Services (NDS) to Microsoft's Windows NT Server platform. "We're taking a close look at what other platforms NDS runs on, including Windows NT Server," said Tony Coreg, Novell's vice president of marketing. Novell isn't expected to keep a full-blown enterprise directory services until the October release of NT Server, due in mid-1996.

No doubt in hopes of making us all forget last week's brouhaha over the desktop future of OS/2, IBM hits the road this week with a side-by-side comparison — completely unbiased, we're sure — of OS/2 Warp and Microsoft's upcoming Windows 95. The ever-zealous IBM marketers are calling it the "Prepare to Compare" tour. News of IBM's plan prompted one wag to analogize to transition a clear advantage: Warp holds over Windows 95. "Many Power users appreciate it greatly," he said. "It's the sound of crackling static in keeping you up at night, not yet spend a few minutes getting to work with Computerworld tip. Now is (800) 222-8244 or our toll-free number at (800) 242-6474. News of the Marylynne Journals can be reached by phone at (800) 222-8244 or via Internet to journals@compuserve.com.

IBM and AS/400 are registered trademarks and *Solutions for a small planet* is a trademark of International Business Machines Corporation. The IBM Home Page can be found at <http://www.ibm.com>. © 1990 IBM Corp.

An AS/400 Advanced Series Solution



He was the first to see that AS/400 Advanced System could be purchased for less than the depreciation expense of his old computers.



and a timely assist from some new AS/400 Advanced Systems.



is knowing whose system is jamming up

Behind Gary Whiting's success in speeding the response time of Great Western's network.



For MIS Director Gary Whiting, the perfect network is built around two numbers: a high one for network satisfaction and a low one for network cost.

Both were challenged. Rapid growth of his consumer finance network was taking response time to unacceptable levels. Administrative costs were rising.

His solution: upgrading to AS/400 Advanced Systems using AS/400 as the backbone of his distributed processing configuration.

The result? Response time and transaction time on the network improved from five seconds to under a second. Support costs fell.

And with AS/400 Advanced Series financing, Whiting could configure his system for less than the depreciation cost of his old computers.

Interested?

To see how others are using AS/400 Advanced Series at 99.7 percent reliability, call 1-800-IBM-3333, ext. B4235.

Or, if on the Internet, stop by our Home Page at <http://www.as400.ibm.com>.

IBM

Solutions for a small planet™

**THE
ALTERNATIVE
TO DELL'S NEW
COAST TO COAST
PENTIUM®
PROCESSOR
NOTEBOOK.**

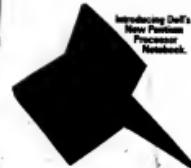
DELL LATITUDE
Dependable. Powerful.
With Superior Battery.

DELL Latitude XP.

DELL Latitude

\$5399

\$3199



If airplanes had electrical outlets, it wouldn't matter so much that most Pentium® processor-based notebooks only last an hour or two. But when your users are on the road, in the air, or in the field, they need more.

Introducing the Dell® Latitude™ XP. The first Pentium processor-based notebook that can last from take-off to touch-down Coast to coast.

Thanks to Dell's smart Lithium Ion battery and power management (not to mention Intel's new LM Pentium chip), the Latitude XP P75 dual scan notebook lasted an average of 4 hours and 40 minutes in "Cross-Country"™ tests run by VeriTest, Inc., a leading independent test lab. That's LA to New York, no problem. Of course, actual battery life will vary depending on configuration and nature of use.

Your users don't have to sacrifice the battery life they need to get the power they want. Call our national account team to try the Pentium processor-based notebook that can last from coast to coast.

DELL
(800) 232-8546

Keypad #1294

The VeriTest Cross-Country test of Dell notebooks tested maximum use of Microsoft Office® applications, a Microsoft Windows® 3.11 OS running on separate, right, Power Management was enabled and RAM of 16MB was installed. VeriTest, Inc. is located in Sunnyvale, CA. For a complete copy of our Limited Warranty, please write to Dell USA, P.O. 2714 W. Broder Lane, Suite 100, Austin, TX 78756. Prices and specifications valid in the U.S. only and subject to change without notice. Pentium and the Pentium processor logo are registered trademarks of Intel Corporation. ©1993 Dell Computer Corporation. All rights reserved.